PROFESSOR BERGSON'S PHILOSOPHY

DAVID BALSILLIE

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AN EXAMINATION OF PROFESSOR BERGSON'S PHILOSOPHY

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BY

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PREFATORY NOTE

THE wide and intense interest in Professor Bergson's Philosophy makes a detailed examination of it desirable ; and it is hoped that the method followed in this volume of dealing with the distinguished metaphysician's works in the order in which they appeared may have a double advantage, as the best way to test the coherency of the system and to mark the phases of its development.

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AN EXAMINATION OF PROFESSOR BERGSON'S PHILOSOPHY

CHAPTER I

TIME AND FREE WILL

THE feature in Prof. Bergson's contribution to the philosophy of experience which distinguishes it fundamentally from the views of previous thinkers, is his new conception of time as concrete time, or what he calls Duration.[1] It would be difficult to frame a definition of the term which would give a clear idea of the precise meaning in which it is used by the author. Those who are most conversant with his works say that one must gradually live into his mode of philosophizing:

[1] In *The Realm of Ends,* just published, p. 307, Prof. James Ward claims to have anticipated Bergson to some extent. (*Ency. Brit.,* "Psychology," 11th edit. p. 577.)

and indeed it almost seems to be "legible only by the light it gives." The author himself laments the inadequacy of language to express reality from the point of view he claims to have reached, and warns his readers of the necessity of making a vigorous effort of introspection if they would verify for themselves the contents of his system. Perhaps in this he does scanty justice to his quite remarkable gift of style, which leaves nothing to be desired in the exposition and illustration of his thought. If the literary quality of his writings has a fascination for the reader on a first perusal, there is a deeper fascination in the freshness of his conceptions, the nimbleness of his reasonings, and especially in the gradual maturation of his views in the three volumes in which these are given to the world. Ground is broken in the "new philosophy" in the volume dealing with the problem of the freedom of the will; and it was doubtless in pondering that problem that the author became convinced of the possibility of gaining an intuition of consciousness "in the making." He makes no profession of giving a theory of free will. On the contrary, he believes that any attempt to do so, or even to define free volition, would inevitably result in deter-

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minism of the will. But he holds that free volition is an indisputable *datum* of consciousness; and he essays to prove that his new conception of Duration as the reality of consciousness, is adequate to furnish a complete refutation of psychological determinism, on which, he says, the other forms of determinism are ultimately grounded.

The centre of gravity of the volume on *Time and Free Will* (the more appropriate title given to *Les Données immédiates de la Conscience* in the English translation) is accordingly the part that contains the exposition of the principle of Duration. The rest of the volume is an application of that principle to expose the errors of the determinist theory of the will, as being due to a wrong conception of the psychic process. The two piles on which the Bergsonian system is supported are his principle of Duration and his view that consciousness has a practical destination in view of our needs and activities. He traces the antagonisms of previous systems of philosophy to the misleading postulate, as he calls it, that consciousness is of exclusively speculative import. In a discussion of the notion of the intensity of psychic states, he controverts the method and results of psycho-physics

as resting on the mistaken view that sensations are magnitudes. The qualitative conception of psychic phenomena takes the place of the quantitative conception, on which the author considers the theory of the association of ideas to be based; and by his principle of Duration the subjection of those deep-seated states of consciousness, which constitute in their organic unity our real personality, to the empirical form of causality, the only form recognized by the author, is pronounced to be an inconceivability.

Prof. Bergson's method, intuitive though he claims it to be, has yielded in three moderate-sized volumes a richer crop of speculation than usually comes up in such limited space. His first volume, although not professing quite so much, really offers a new theory of the Will, as well as a new method of philosophizing. His second volume, *Matière et Mémoire*, points the way to a new theory of Psychology. His third volume contains a new theory of Evolution. If all three are found to be true in their foundation and superstructure, they should mark a new epoch in the highest intellectual pursuits. Whether or not he has given the world a revelation of philosophic truth which has been hidden from

the ages, there are at least delight and discipline to be got in tracing the evolution of his thought through its successive phases. There are distinct traces of growth, and not a few modifications of fundamental conceptions. The first necessity for getting into touch with his train of thought is to follow the track of the genesis of his conception of Duration. Fortunately, he has made generous use of his faculty of illustration to aid those of his readers who may not be able to emulate his own "vigorous effort of introspection."

The succession of our inner states is likened to "the notes of a tune melting, so to speak, into one another. Might it not be said that even if these notes succeed one another, yet we perceive them in one another, and that their totality may be compared to a living being whose parts, although distinct, permeate one another just because they are so closely connected? The proof is that, if we interrupt the rhythm by dwelling longer than is right on one note of the tune, it is not its exaggerated length, as length, which will warn us of our mistake, but the qualitative change thereby caused in the whole of the musical phrase." But if the permeation is due to the closeness of connexion, should not permeation reach

perfection when the notes are heard simultaneously? What would then become of the musical phrase? The unity in which the notes would merge would be one in which musical quality would disappear, and only a discordant sound would be heard. In the notes there is succession, but not without distinction; if there is not discreteness, there is at least qualitative distinction; and if there is qualitative distinction between the states of consciousness, how could one of them represent the whole? Each state must resemble more a Leibnitzian monad than a note of a tune, since one note cannot represent the whole notes of the phrase. This illustration rather raises difficulties than assists comprehension. Can there be succession without distinction? If qualitative distinction is allowed, how can one state represent the whole without some kind of pre-established harmony?

We are told that if we listen to the ticks of a pendulum without counting them, we can tell when a minute has passed. The ticks are said to organize themselves like the notes of a tune, permeating each other so as to form a continuous multiplicity of a qualitative kind which has no resemblance to number. We thus get the image of pure duration, and get

entirely rid of the idea of a homogeneous medium or a measurable quantity. If the reader makes the experiment, he will probably find that he can make a rough guess when a minute has passed, but that he has had no perception or sensation of the ticks melting into each other, and organizing themselves like the notes of a tune. If he reflects on the phenomena, he may come to a clearer conviction than he had before of the necessity of a homogeneous background to the multiplicity of the ticks. The author goes on to say, "When the regular oscillations of the pendulum make us sleepy, is it the last sound heard, the last movement perceived, which produces this effect? No, undoubtedly not, for why then should not the first have done the same? Is it the recollection of the preceding sounds or movements, set in juxtaposition to the last one? But this same recollection, if it is later on set in juxtaposition to a single sound or movement, will remain without effect. Hence we must admit that the sounds combined with one another and acted, not by their quantity, as quantity, but by the quality which their quantity exhibited, *i.e.* by the rhythmic organization of the whole." Is it not rather the monotony of the identical sounds, without

any rhythmic organization, which at once wearies the auditory organs by their sameness, and lacks interest to keep awake attention? If rhythmic quality lulled to sleep, the notes of a piano heard in our bedroom should be a boon. Experience proves the contrary. The author says that if the sensation remained always the same, it would continue to be indefinitely slight and indefinitely bearable. Precisely; so slight and bearable that it ceases to make any impression on our sensibility, jaded with monotony, and we fall peacefully asleep. It is the author's opinion, however, that "we consider it to be always the same sensation, because we think, not of the sensation itself, but of its objective cause, situated in space." If when we are wide awake, we cannot detect any melting of the ticks into each other so as to form a rhythmic organization, we are not likely to observe it when we are falling asleep.

The above may serve as a sample of the kind of illustrations that are given. The effect of them is to leave a suspicion that the author has pushed too far his principle of Duration; that there is not such complete mutual permeation of states as makes separation of any one of them from the whole im-

possible except to abstract thought. And that suspicion is strengthened when we find that a distinct separation takes place between what are called superficial states and deep-seated states. It is not a mere separation by abstract thought, for that would leave the unity of the two sets of states unaffected in reality. The separation is so radical that the deep-seated states are said to form by mutual permeation the organic unity which is the real personality, the seat of free will; whereas the superficial states are subject to the law of the association of ideas. So deep is the severance that he speaks of two selves in each person, the real or fundamental Self which is free, and the superficial Self, which is under the law of necessity. Facts must have weighed heavily against theory, since he neglected an evident means of escape from such an awkward dualism. He had said in his definition of Duration that any state, even the simplest, may represent the whole. Elsewhere he says that "in the simplest of them the whole soul can be reflected" (p. 98). The isolated state, or any isolated group of states, would then be the whole personality, and when it manifested itself in action, it would be the person determining himself.

Such a view would have been more in conformity with common-sense belief, and more in harmony with the author's own opinion elsewhere expressed, that there are degrees of freedom. But no degrees are admitted between the determinate volition of the superficial self and the free volition of the fundamental self.

To understand and estimate the author's account of how this vital severance is effected, it will be necessary to trace his views, as given in *Time and Free Will*, regarding space, homogeneous time, and number in relation to space. In this volume his idea of space oscillates between an intuition of an external reality and an act or conception of the mind. Thus in one place he says, "Our senses perceive the qualities of bodies and space along with them." And on the next page he says that "Kant, far from shaking our faith in the reality of space, has shown what it actually means, and has even justified it." On a later page we read, "We have assumed the existence of a homogeneous space and, with Kant, distinguished this space from the matter which fills it. With him we have admitted that homogeneous space is 'a form of our sensibility,' and we understand by this simply that

other minds, *e.g.* those of animals, although they perceive objects, do not distinguish them so clearly either from one another or from themselves." And this is followed immediately by the statement that "space is an intuition of a homogeneous medium peculiar to man." Again he says, "There is a real space, without duration, in which phenomena appear and disappear simultaneously with our states of consciousness. There is a real duration, the heterogeneous moments of which permeate each other. . . . The comparison of these two realities gives rise to a symbolical representation of duration, derived from space." In this passage he seems to ascribe a reality to space which he virtually denies to objects in space, in calling them phenomena which appear and disappear. Another statement is closely akin to the foregoing. "We have to do," he says, "with two kinds of reality, the one heterogeneous, that of sensible qualities; the other homogeneous, namely, space." On the other hand, he defines space as "a unique act of the mind . . . the intuition, or rather the conception of an empty homogeneous medium. It is scarcely possible to give any other definition of space." Perhaps he comes nearest the truth when he calls

it "a kind of reaction against the heterogeneity which is the very ground of our experience." And, in accordance with this last view, he adds that, "if space is to be defined as the homogeneous, it seems that inversely every homogeneous and unbounded medium will be space."

The reduction of time to space is of vital importance for the author's way of accounting for the severance between superficial and deep-seated states. It will be seen that he then uses space in a double sense, first as an external reality in which real objects are juxtaposed, and then as the ideal homogeneous medium in which we become habituated to set out the psychic states in reflective thinking. Our necessary converse with space and objects in space, as external realities, creates in us the habit of thinking in space as a homogeneous medium. He thus blemishes his system with another gratuitous dualism: space is both an external reality and the empirically generated form of the inner sense. He had a glimpse of the truth when he spoke of space as a kind of reaction against heterogeneity. Homogeneity and heterogeneity are correlative notions. It is only as against the background of a homogeneous medium that we can con-

ceive the discrete multiplicity of objects in external nature, or the succession of inner states. Space and time are two different aspects of the same fundamental form of thought, named differently as being applied to different fields of experience.

But the "growing Ego" can only be made capable of bearing the double load of its twin progeny by the reduction of the homogeneous medium of the inner sense to space. Are there any valid reasons for doing so? The author, resting on his theory of consciousness as pure heterogeneity, says, "it may be surmised that time, conceived under the form of a homogeneous medium, is some spurious concept, due to the trespassing of the idea of space upon the field of pure consciousness. At any rate, we cannot finally admit two forms of the homogeneous, time and space, without first seeking whether one of them cannot be reduced to the other. Now, externality is the distinguishing mark of things which occupy space, while states of consciousness are not essentially external to each other, and become so only by being spread out in time regarded as a homogeneous medium. If then, one of these two supposed forms of the homogeneous is derived from the other, we

can surmise *a priori* that the idea of space is the fundamental datum. . . . Time is nothing but the ghost of space haunting the reflective consciousness."

Some grounds *a posteriori* are also sought for exorcising this ghost of space. The illusion that time is a measurable quantity gets support from the belief that as such it "enters into the formulæ of mechanics, into the calculations of the astronomer, and even of the physicist." Science, however, deals only with simultaneities, and can take account of time only on condition of eliminating its essential quality of duration. We can admit all that without assenting to his view that time as the form of our inner sense is a "spurious concept." Science, as *Naturwissenschaft*, deals with external phenomena, and does not usurp the function of psychology. That is why in treatises on mechanics there is "no definition given of duration." But since there is given in them the definition of "the equality of two intervals of time," it is plain that time is not ignored in mechanics. The author makes a distinction between space and extensity. He ought, therefore, to eliminate space also from the definitions and calculations of science. Space as homogeneous medium is as little

measurable as time. Extended objects are measurable, but not the boundless homogeneity of a mental concept; and the author, by distinguishing between space and extensity, makes the former as truly a mental concept as time. Both are present as forms of thought in the scientific study of nature.

The omission or arbitrary contraction of time in the equations of the astronomer is easily accounted for. When he calculates the period of a solar or lunar eclipse he is said to contract the time at his pleasure; that he may even neglect consideration of time altogether without injury to his equations. No doubt the equations would stand good mathematically. But if he may contract the time indefinitely, may he also expand it indefinitely? He might assume an interval of time so great that his prediction of the eclipse would be falsified by a change of conditions in the solar system. The omission or contraction of time in his equations is owing to his confidence in the uniformity of nature, that there will be no such change in its conditions as would falsify his calculations. There is no arbitrary treatment of time in the example given of the calculation of velocity. The interval covered by the falling of the stone is taken as a definite

unit of time, just as the extensity traversed during that interval by the moving object is taken as a definite unit of space or extensity; and the simultaneities which interest the scientist are those between the units of time as defined by the falling stone, and the units of extensity as measured by the moving object.

However, the author, being now satisfied on both *a priori* and *a posteriori* grounds that time is a spurious concept, is free to show how the twinship of the two selves has been begotten by the trespassing of the idea of space upon the field of pure consciousness. Hitherto he has been faithful to the solidarity of Duration. We have had in abstract form what must be deemed his definition of it, in which he represents the growing Ego as an organic unity, "in the making," of states which so permeate each other that no one of them can be separated from the whole except by abstract thought. In the illustrations the simplest states of consciousness, the notes of a tune, the ticks of a pendulum, the strokes of a clock, the blows of a hammer, melt into each other, form a continuous or qualitative multiplicity, and give us the image of pure Duration. Now, we find that there are two very different ways of regarding duration, two aspects of con-

scious life. "A close psychological analysis reveals below homogeneous duration" . . . [that 'spurious concept' which is really space] . . . "a real duration whose heterogeneous moments permeate each other; below the numerical multiplicity of conscious states, a qualitative multiplicity; below the Self with well-defined states, a Self in which *succeeding each other* means *melting into one another* and forming an organic whole." The former of these two aspects of conscious life he holds to be only the shadow of the real Self "projected into homogeneous space." "The Self thus refracted and thereby broken to pieces is much better adapted to the requirements of social life in general and language in particular; consciousness prefers it, and gradually loses sight of the fundamental Self." Consciousness is "goaded by an insatiable desire to separate," which springs from our needs and the requirements of social life. It "substitutes the symbol for the reality, or perceives the reality only through the symbol." The projection of our psychic states into space in order to form a discrete multiplicity is likely to influence these states themselves, and to give them in reflective consciousness a new form, which immediate perception did not attribute to

them. The vigorous effort of analysis which is necessary to distinguish the fluid continuity of our inner states from their image, first refracted and then solidified in homogeneous space, is thus a return to immediate perception, as it was before consciousness was "sophisticated" by the goading of our needs and the requirements of social life. It is an acquired habit of thinking by symbolical representation, which has broken to pieces the Self for reflective consciousness. Our thoughts, in consequence of our needs, are occupied for the most part with the relations between material objects in space, and these interest us far more than the inner mental reality. There is a kind of "endosmosis" between our psychic states and the external realities. Objects, through our familiarity with them, become crusted over with our feelings, and assume variable aspects to the same person at different times, nor are they ever quite the same to different persons. Inversely, the quantitative multiplicity of external objects insensibly steals into our conception of the qualitative multiplicity of our psychic states. These become for our reflective consciousness a discrete multiplicity, and float solid on the surface of consciousness. Language comes in

as a potent agent in completing their solidification. It strips off the psychic states the special characteristics which they have in individual experience, and changes them from living process to stereotyped thingness. Thus, by the combined influence of external objects and language, our superficial states become an easy prey for the associational theory of volition. Their quality becomes a measurable quantity. As a discrete multiplicity they are amenable to the law of causality. And so the "growing Ego" has severed itself into the dualism of the superficial Ego and the fundamental Ego.

The superficial Ego, however, is a mere illusion, the creature of habit. States which are projected into space by our predominant interest in the relations of external objects, and solidified there by the inadequateness of language to express reality, are not thereby changed in their own nature. If to immediate perception they were an organic unity of states permeating one another, and if they are again seen to be so by a vigorous effort of introspection, what reason is there for handing them over to the associationist, and for saying that in our lives we "are acted" rather than act ourselves? That is treason to his ruling prin-

ciple of Duration. He had said that the simplest state may represent the whole, may "fill the whole soul," and that even when a single state is manifested in action, it is the person determining himself. Why not, then, to save the consistency of his system, adopt the hypothesis of degrees of freedom, and avoid the absurdity of making the growing Ego a Siamese twinship?

If thinking by what the author calls symbolical representation in a homogeneous medium is a habit generated by our needs, it is a blunder to make any of our psychic states amenable to determinism. If it is necessitated by our mental constitution, his principle of Duration cannot be accepted as a correct representation of conscious life. Either he is wrong in yielding an inch of ground in consciousness to the associationist, or his conception of Duration must be pronounced to be an illusion. There is no escape from one or other of these conclusions. The question comes to be which of them is most consistent with facts. In the author's genesis of the notion of number, he shows that the units must *necessarily* be set side by side in a homogeneous medium, and the only one at his disposal is ideal space. Number implies an intuition of terms. If

they form an organic unity, they cannot yield the notion of number. If they remain distinct, they are in juxtaposition, and we are dealing with space. "The process," he says, "by which we count units and make them into a discrete multiplicity has two sides: on the one side we assume that they are identical, which is conceivable only on condition that these units are ranged alongside each other in a homogeneous medium: but on the other hand the third unit, for example, when added to the other two, alters the nature, the appearance, and, as it were, the rhythm of the whole; without this interpenetration and this, so to speak, qualitative progress, no addition would be possible. Hence it is through the quality of quantity that we form the idea of quantity without quality." Again he says, "if we did not already localize number in space, science would certainly not succeed in making us transport it thither. *From the beginning therefore* [italics mine] we must have thought of number as of a juxtaposition in space." In the case of number, therefore, the author allows that a notion "is not conceivable" unless against a background of a homogeneous medium. Duration and homogeneity are reconciled to their mutual benefit, and we

seem to be furnished with a schema for a necessary mode of "symbolical" representation of psychic states generally.

M. Bergson draws a distinction between knowledge of things "as made," and knowledge of things "in the making." A conscious state "as made" is a mere thing, a stereotyped image; one "in the making" is a living active process, and can be known, he says, by a vigorous effort of introspection. A difficulty is met here in our unit of duration. Take a sensation, say of colour, and consider how impossible it is to get an intuition of it in the making. The process by which it is generated, if it is generated at all in the mind, must be by billions of differential sensations corresponding to the billions of vibrations which are the external cause of them. The intuition would become barely possible if to us a thousand years were as one day or one hour. In *Matière et Mémoire* it is said that "every concrete perception, however short it may be, is a synthesis of an infinity of pure perceptions which succeed each other." Such, on the author's own authority, is a conscious state in the making. How is an intuition of the process possible with our unit of duration? The necessary conclusion seems to be that

the process is in the external cause, and the sensation is not a process at all, but rather a representation or image of the process focussed on consciousness by our unit of duration.

Another difficulty makes one hesitate to accept in its stringency the principle of Duration. When we try to think the present, it has already become the past. The object of introspection at that moment must be states as made. They are no more in living process, permeating each other. It is quite legitimate, the author allows, to treat past states as a discrete multiplicity. We incline to suppose that we necessarily do so, and that we cannot have introspective knowledge in any other form. We have seen reason to suppose that a psychic state is rather an image or a representation of the result of a process than a process itself; and on that view, without denying the continuity of consciousness, mutual permeation of states is not conceivable. On the author's view it is just as inconceivable between past states as dead stereotyped things and present states, living and active as he conceives them. Besides, what need would there be for memory on the author's theory that past states enrich the present by per-

meation? Memory would be an unnecessary and cumbrous duplicate. We should have an intuitive understanding. Reflection would be a superfluity. For the Professor, who considers that perception always tends to complete itself in action, perception should pass so immediately into action as to render us conscious automata.

Let it be granted that we can have no intuition of psychic states in the making; that only past states, *i.e.* states as made, can be objects to our thought; that these past states must be thought as a discrete multiplicity; that they can only, therefore, be cognized in or against a homogeneous medium; and "symbolical" representation of them in a homogeneous medium is necessary if we are to think them at all. That the medium chosen is usually ideal space rather than time, is because an ideal visual perception, from its clearness and distinctness, is the best aid to intellectual processes. Still, even if the author consented to relax the stringency of his principle of Duration, he would not necessarily have to surrender the superficial Self to determinism. He would, as we have said, have the conception of degrees of freedom to fall back upon; although doubtless the inconsist-

ency between surrender to determinism and a relaxed conception of duration, would not be so glaring as between the surrender and adherence to his sovereign principle of duration in all its stringency.

We have still to consider how far the author's theory of the growing Ego, even in its aspect as the fundamental Self, can bear the burden of a thorough refutation of the determinism of the will. He makes no attempt to frame a theory of free volition, and indeed from his presuppositions it would probably be impossible to do so. He acknowledges that the very attempt to define or explain free volition inevitably results in determinism; and he contents himself with regarding the freedom of the will as an indubitable datum of consciousness. It is questionable whether, regarded as a manifestation of the fundamental aspect of the growing Ego, it is not as amenable to the law of causality as it was to Kant in the *Kritik*, and as it is to the associationist.

Nothing but assent to its truth, and praise of the mode of treatment, are due to his chapter on the intensity of psychic states. If the associationist theory of the will rested on the quantitative character of conscious

states, he would have demolished it as completely as he demolishes the psycho-physical method and results of Delbœuf and Fechner. But it is not evident that psychic states as qualitative are less usable by the associationist than states as quantitative. The associationist does not regard one state as determining another because it is greater in quantity than the other. If he speaks of one motive being stronger than another, he does not necessarily conceive them as quantitative. The strength of the motive may reside in its quality. For the associationist, causal relations between states are from their resemblance to each other or from their contiguity in experience, and they would not less resemble each other or be less contiguous because they were qualitative rather than quantitative. There is psychological value in the chapter on intensity; but it does not seem to have any bearing on the problem of the freedom of the will.

The value of Prof. Bergson's refutation of determinism depends on the efficiency of his principle of Duration in the organization of conscious states, and on the assumption that the empirical conception of causality is the true one. For although the determinist sometimes rests his case on the principles of

mechanical science, the author undertakes to show that physical determinism is reducible to psychological determinism. There is, he thinks, what may be called an *a priori* reason for the two opposing views of the nature of volition: the determinist view being grounded on a mechanical conception of the relations of things, and the belief in freedom of the will being natural to those whose tendency is to a dynamical conception of them. Dynamism starts from the idea of voluntary activity; mechanism starts from the assumption of necessary laws, and "never escapes from the narrow circle of necessity, however rich and difficult to foresee the combinations may be which it reaches."

The *a priori* form of determinism which, as the author thinks, rests on a mechanistic *weltanschauung*, may be called metaphysical determinism; and no doubt Prof. Bergson would identify with it Kant's teaching in the *Kritik*, that without the relation of causality we should have only incoherent subjective states. But he pays no further attention to the metaphysical form of determinism even when he proceeds to the analysis of the notion of causality. As a true dynamist, he deals mainly with the facts, some physical, and

some psychological, which are marshalled against freedom.

Physical determinism grounds on the molecular theory of matter and the mechanical theory of the conservation of energy. The molecular theory reduces all physical phenomena to elementary movements of molecules or atoms, sometimes of vibration, sometimes of translation. The matter of all organized bodies being subject to the same laws, the nervous system consists only of molecules and atoms which attract and repel each other. Hence at a given moment the molecular state of the brain is modified by shocks which the nervous system receives from surrounding matter; sensations, feelings, and ideas can be deduced as mechanical resultants of shocks received from without compounded with molecular movements in the nervous substance. And the reaction of our organism on its environment through similar molecular movements outwards, accounts for reflex movements and our so-called free and voluntary actions. It is assumed that by the principle of the conservation of energy which reigns in the whole universe, and therefore in our nervous system, the position of every atom in the universe is determined by the action

of all other atoms upon it; so that if the mathematician knew at a given moment the position of the atoms of a human organism, and the position of all the other atoms in the universe "capable of influencing them," he could calculate our past, present, and future actions with as much certainty as astronomical phenomena are predicted.

Prof. Bergson's first objection to this form of determinism is that, even granting that physiological and nervous phenomena are necessitated, it does not follow that conscious states must be necessitated. We have no ground for holding that view unless we can prove a necessary connexion between conscious states and cerebral states. There is indeed a parallelism between the physiological series and the psychological series in a fair number of cases: but "to extend this parallelism to the series themselves in their totality, is to settle *a priori* the problem of freedom. . . . We do not prove and we never shall prove by any reasoning that the psychic fact is fatally determined by the molecular movement." A movement may be the cause of another movement, but not of a conscious state. In the limited number of cases in which there is unvarying parallelism between

physical states and mental states, the facts are confessedly almost independent of the will.

If, however, the conservation of energy must be regarded as a law universally valid, freedom of the will would have a limited range. M. Bergson questions its universal validity, and thinks that its service to science is overrated. There was progress in scientific discovery before it was thought of. Leibnitz's *vis viva* took the place of Descartes's idea of the conservation of a fixed quantity of motion in the universe, and the *vis viva* has been followed by the mechanistic conception of the conservation of energy, which means "at bottom," that "the universe is composed of material points subject solely to forces of attraction and repulsion arising from the points themselves, and possessing intensities which depend only on their distances." There is surely a premonition of *L'Évolution Créatrice* in the following passage: "No one can tell whether the study of physiological phenomena in general, and of nervous phenomena in particular, will not reveal to us, besides the *vis viva* of which Leibnitz spoke, and the potential energy which was a later and necessary adjunct, some new kind of energy which may differ from the other two by rebelling

against calculation." That the author had in view some higher development of his principle of Duration, appears from another passage which follows close after the former: "The instinctive, though vague belief of mankind in the conservation of a fixed quantity of matter, a fixed quantity of energy, perhaps has its root in the very fact that inert matter does not seem to endure or to preserve any trace of past time. But this is not the case in the realm of life. Here duration certainly seems to act like a cause."

The law of the conservation of energy is wrongly stated by Prof. Bergson. He says it can only have validity for a system in which the points can return to their former positions. It has nothing whatever to do with relations between points and positions except with reference to the difference between potential energy and kinetic energy. The energy in every material system varies by the system parting with it to others, or receiving it from them. All forms of energy tend to take finally the form of heat, and hence the law of the Dissipation or Degradation of energy; since, so far as known, there can be no retransformation from heat equally diffused in the universe to any other form. The two laws,

taken in conjunction as they must be, are therefore more closely analogous to the author's theory of the irreversible psychic process than he seems to suppose. They as little imply the return of points to their former position as he admits the recurrence of the same motive in consciousness when his attention is confined to Duration as operative in the fundamental Self. We shall see presently that this objection is only valid on the presupposition of the empirical conception of causality. From that point of view a sufficient refutation of physical determinism was given, when it was shown that no such invariable connexion between cerebral states and psychic states has been discovered as would prove a causal relation between them. The want of such proof, the author thinks, cannot be ignored; and he concludes from that, that physical determinism must be grounded on, and therefore be reducible to, psychological determinism. The two forms then give support to each other. Psychological determinism gets a geometrical character and stricter form from the mechanism of physical determinism; and the principles on which the latter is based are made universally valid by the phenomena of consciousness being brought under the law of causality.

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Psychological determinism is traced to an acquired habit of representing states of consciousness symbolically in space. They are then conceived as a discrete multiplicity, and their continuity is explained by a causal relation between past and present states; whereas, on the author's theory, continuity is explained by the interpermeation of states. There is allowed to be some relation which explains how one state of consciousness passes into a new state. But is this relation the cause of the transition? To answer this question the author has again recourse to illustration. The passage must be quoted in full. "In resuming a conversation which had been interrupted for a few moments we have happened to notice that both we ourselves and our friend were thinking of some new object at the same time. The reason is, it will be said, that each has followed up for his own part the natural development of the idea at which the conversation had stopped: the same series of associations has been formed on both sides. No doubt this interpretation holds good in a fairly large number of cases; careful inquiry, however, has led us to an unexpected result. It is a fact that the two speakers do connect the new subject of conversation with the former one:

they will even point out the intervening ideas; but, curiously enough, they will not always connect the new idea, which they have both reached, with the same point of the preceding conversation, and the two series of intervening associations may be quite different. What are we to conclude from this, if not that this common idea is due to an unknown cause—perhaps to some physical influence—and that, in order to justify its emergence, it has called forth a series of antecedents which explain it and which seem to be its cause, but are really its effect?"

In the first place, there is here an avowal of an actual causal relation which, for a reason to be stated immediately, would certainly escape the observation of the associationist. But it is no refutation of associationism to show that there are causal relations which escape observation. If the fact is allowed, whether it can be observed in all cases or not, the association conception of mind is saved. Here the common idea is said to have called forth the two series of antecedent states which preceded it: a cause has been preceded by its effects. But it is possible to explain the facts in other ways less startling. The common idea may have been a mere coincidence: it may have

been caused in both persons by a momentary reversion in memory to some point in their previous conversation: or the physical influence may have been the cause of the two trains of ideas antecedent to the common idea. Any of these ways is surely preferable to supposing that a cause may be preceded by its effects. The author, however, prefers to assume that the common idea, not yet existent, produced the antecedent states as the explanation of itself. He certainly does not say, and does not intend to say, that he and his friend merely imagined the series of antecedents as an explanation of the common idea. We shall see presently to what an extreme his principle of Duration is forced by this assertion that a cause may follow its effect.

Another illustration is given from hypnotic suggestion, which may be briefly summarized. The patient when in the hypnotic state is told to perform a certain action at a certain time. Without having any knowledge that the command has been given to him, he, when in his natural condition, passes through a series of states, and when the appointed time comes duly performs the action, and explains it as being connected causally with his antecedent states. In this case also, the author affirms

that the action performed was the cause and the antecedent states were its effects; there is said to have been "willing for willing's sake," and the act was "left to be explained by antecedents of which it has really been the cause." Would it not be more reasonable to say that the action was caused by the suggestion given, and that any connexion between it and the antecedent states was an illusion; or why should not the suggestion have started the train of ideas that led to the act?

What is to be understood by "willing for willing's sake" appears from the context. We often weigh motives after we have actually decided what our action is to be. In that way we seek to explain or to justify an action which we wish to believe has proceeded from some other motive than the real one. The action may, on the author's theory, be a manifestation of the personality: but it seems that we make a point of safe-guarding the principle of mechanism, and of conforming to the laws of the association of ideas. The mind foresees the abrupt intervention of the will, and "tries to legitimate it beforehand by a formal deliberation." But there is no analogy between that process and the two illustrations. There was neither foresight of the common idea in

the one, nor foresight of the hypnotic patient's act in the other. In both there is said to be effect actually preceding cause in a way it does not do in "willing for willing's sake," as described in the context. And not only is there recognition of real causal relation; there is recognition of it in a form which reveals the far-reaching influence of the principle of Duration. We are told on the next page that "a more attentive psychology sometimes reveals to us effects which precede their causes, and phenomena of psychic attraction which elude the known laws of the association of ideas." They do not, however, elude the grasp of Duration. If in conscious life effects ever precede their causes, a state not yet existent may influence a present state. The phenomenon cannot be explained otherwise than by the mutual permeation of present and future states. Permeation not only enriches our present by our past: it also influences our present by our future. The distinction between past, present, and future disappears, and our author virtually assents to the views of certain Neo-Hegelians, that beneath our finite form of consciousness there is a real mental life in an eternal present, which a more attentive psychology can reach. If it is once

allowed that effect may precede its cause by any interval, however short, there is no reason why the interval may not be indefinitely extended. Then homogeneous time is effectually got rid of, and our whole life becomes a simultaneity.

There is by the author's acknowledgment mutual permeation of states, even the simplest, everywhere to baffle the associationist in his quest of causal relations. It is found between such a simple idea as that of opening a window and that of the movement made to do so. If the person, on rising, forgets what he intended to do, he has only to think of the idea of the movement he has made, to see or feel the idea of opening the window prefigured in it. The same movement would have had a different "colouring" to his consciousness if he had intended to do something else than open the window. The associationist would have seen no new colouring in the idea of the movement this time, but only its association with the idea of a new end. Similarly, the scent of a rose is permeated with recollections of childhood, and smells differently to different persons. Permeation in this case is also ignored by the associationist, and he ascribes the different personal impressions of rose-scent

to different associations connected with it. The author "breathes-in the recollections with the very scent: it means all that" to him.

What can those superficial states be, then, for which the associationist theory is fitted, if they are not such simple states as these? Those which that theory fits are said to be impersonal. But who ever had an impersonal sensation or an impersonal state of consciousness of any kind? My sensation or other state may to another person be stripped bare of its personal characteristics when I try vainly to describe it to him in words, but it is never impersonal to myself; and it is the relation between my states and my actions which have to be explained, and not the relation between my actions and the aspect of my states when they are imperfectly expressed in words. The author finds a personal colouring in the simplest sensations. He says associationism does away with it, and retains only the geometrical and impersonal element. Yet he hands over to the associationist the bulk of our experience, and reserves for free will only the deep-seated states. That is surely glaringly inconsistent with the principle of Duration as defined by him and set forth in his illustrations. If he tries to justify his surrender of the superficial

states by alleging that they may recur so as to be amenable to the empirical law of causality, *i.e.* that the same cause will produce the same effect, he is guilty of another inconsistency; since he has affirmed that no two states of consciousness are ever the same. Hence the same motive can never recur to produce the same effect. An artificial habit of thinking may give a motive the appearance of being an old motive come back again; but the Professor knows better, for that would be a violation of his principle of Duration. And if the principle is available for warding off associationism from the deep-seated states, it ought to be just as available for warding it off the others; for notwithstanding appearances which may have been engendered by habit, Duration in the growing Ego rules with as sovereign authority in the one set of states as in the other.

The surrender of the one set of states to associationism, and the restriction of freedom to the rare occurrence of moral crises in the other, is an unwitting confession that the growing Ego is not capable of being the bearer of free volition and the sense of personal identity. The simpler states fly off at a tangent from the circumference of consciousness. And while the author has an inveterate

hostility to the noumenal Ego as the ground of personality and freedom of the will, he can only reconcile his conception of a growing Ego with the immediate datum of free volition, by investing certain psychic states with the attributes of the noumenal Ego. His growing Ego is the strange dualism of an Ego amenable to psychological determinism, and an Ego which manifests itself in free volition; an Ego which is indispensable for needs and activities and the relations of social life, and an Ego which is ever advancing to higher degrees of freedom. And these twain are one, equal in substance by the principle of Duration which permeates them both. There is inconsistency in saying that symbolical thinking in space is a useful artifice engendered by habit but a barrier against knowledge of reality, and yet giving over one Ego who is the victim of it, in seeming only, to the law of causality. There is inconsistency in letting the minor states fly off at a tangent from the organic unity, and saying that the simplest state cannot be separated from the whole except by abstract thought. To be consistent it would be necessary either to refuse an inch of ground in conscious life to associationism, and so remain true throughout to the new

principle of Duration; or else to throw up Duration, and leave the associationist master of the whole sphere of the growing Ego. There is apparently no other choice apart from the hypothesis of the noumenal Ego.

But even if the author took advantage of his own admission that the simplest state may represent the whole, and assumed that there are degrees of freedom which barred out the associationist altogether, there are positions remaining which it is difficult to reconcile with each other. The final position taken in *Time and Free Will* is that an act of free will occurs only very rarely on occasions of moral crisis. For the most part we "are acted" rather than acting. But in a footnote on page 237 it is stated that "the process of our free activity goes on, as it were, unknown to ourselves, in the obscure depths of our consciousness at every moment of our duration; that the very feeling of duration comes from this source; and that without this heterogeneous and continuous duration, in which our self evolves, there would be no moral crisis"; *i.e.* none of those rare occasions on which alone we are said to be really free. How are these seemingly contradictory positions to be reconciled? We are free at every

moment of duration. We are free only on rare occasions of moral crisis. And we can only be free on those rare occasions in virtue of that continuous duration, at every moment of which we are acting freely. This looks rather like a tangle of contradictions. There cannot be free action without an actor. Who is the agent at every moment of duration? It cannot be the Ego, for it is a growing Ego, is only the organic unity of states that permeate each other. These states, however, we are told, are living beings, analogous to the cells of the body, which also have an individual life of a kind. We are also told that in the realm of life duration certainly seems to operate as a cause. Will one of these hypotheses, which have a look as primitive as the guesses of the early Greek thinkers, be made use of against metaphysical determinism?

It was quite to be expected from the author's presuppositions that in discussing the notion of causality he would ignore the metaphysical form of it. Kant had said that without the relation of causality, we should have only an incoherency of subjective states. The mutual permeation of states would dispense with the need for the causal relation, and

therefore Prof. Bergson did not feel himself called upon to disprove metaphysical determinism, as it resulted in the *Kritik of Pure Reason* and was sloughed off in the *Kritik of Practical Reason.* His line of argument in vindication of the freedom of the fundamental Self is, that the empirical law of causality cannot apply to conscious states, because the same cause, or motive, can never recur to produce the same effect. If his principle of Duration is taken for granted, that reasoning is valid against the determinist whose conception of the law of causality rests on an empirical foundation, that there is causal relation only between terms which are invariably conjoined in experience. It has no validity against the metaphysical determinist, who holds there is *a priori* necessity that every event must have a cause. The associationist will have some reason for hesitating to accept the principle of Duration: and admirable as is the exposition that is given of the different forms of empirical causality, it has no convincing force for anyone who believes in the *a priori* necessity of causality as a form of thought. It may have been the inadequacy of language to express reality which betrayed the author to speak sometimes

of a causal relation between particular states, although it does seem to indicate some lingering conviction "in the obscure depths" that such a relation was necessary. At any rate he comes very near recognizing a causal relation when he says that a free volition is a manifestation of the whole personality: for a question immediately arises as to the origin and nature of the personality.

That is answered by the author in his genesis of the growing Ego. It is an organic unity of psychic states permeating each other, and at every moment of its growth there is free action, but no agent apparently save the states themselves. How, then, is the free action which is only experienced at rare moments of moral crisis related to the free activity of the states? And how is the free activity at every moment of duration to be reconciled with the subjection of the superficial self to the laws of association at all times except the rare moments of moral crisis? Do the states rise into being spontaneously? Does the law that every event must have a cause not apply to them even though they are qualitative? Or are they an exception to the law *ex nihilo nihil fit*? Are they primarily only epiphenomenal repre-

sentations of shocks given to our nervous system, and focussed on our consciousness by our unit of duration? Or is the free action at every moment of duration action of some agent underlying the states, and only manifesting itself in them?

All such questions are left unanswered in *Time and Free Will.* Yet answers must be found for them before we can be sure that a manifestation of an organic unity of mutually permeating psychic states is really an act of free will. If there is no bearer for the psychic states, they must either arise spontaneously, or be effects of some external cause. How can such an organic unity "ponder and decide," as the Professor says the growing Ego does at moments of crisis? Everything about the states and their relations is spontaneous. Not only their origin, their mutual permeation also is spontaneous; their organization for the most part in accordance with the laws of the association of ideas is determined by the growing Ego's lower needs. Why should there be any departure from spontaneity, any need for pondering and deciding? Why, in brief, are we not conscious automata? We are only saved from being so by the continuous free activity "in the obscure depths,"

which must be the activity of some agent distinct from the states. The author says that the moments of moral crisis in which alone we are really free would never occur unless there was free activity at every moment. "The very feeling of duration comes from this source." What other conclusion is reasonable except that we have at the origin of experience a personality the same in kind as that which is gradually attained in the author's system through the mutual permeation of states? The important footnote in the concluding chapter is nothing less than an unwitting confession by Prof. Bergson, that his system cannot hold together without the postulate of the noumenal Ego as the substratum of experience.

There is just one other hypothesis possible. The psychic states and all our conscious life may only be an epiphenomenal reflex of shocks given by vibrations of the external reality which "succeeds in science," and focussed into conscious experience by our unit of duration. But if that were the true nature of consciousness, the free activity at every moment "in the obscure depths" would be a gratuitous assumption, and therefore, according to the author, there could be no feeling of duration.

CHAPTER II

MATTER AND MEMORY

Prof. Bergson has been hailed by some of his critics as the author of a new form of Idealistic Philosophy, but that is a mistaken estimate of his system. It is, as it claims to be, an attempt to give a genesis of experience based on a new conception of concrete time, which shall be free from the errors by which, in the author's opinion, both realism and idealism are vitiated. In his first volume, *Les Données immédiates de la Conscience*, he gave an exposition of his new conception of time, and grounded on it a criticism of the doctrine of determinism of the Will. In the volume here to be considered, not less importance is attached to his other principle, that the destination of consciousness is action. This volume contains the chief part of the author's contribution, thus far, to the theory

of knowledge; the contents are a complex of physiological psychology and of metaphysical speculation as to the nature of external reality.

At the outset the reader is asked to dismiss from his thought all preconceived theories, and to look upon the universe as a vast totality of images, which act and react upon each other according to the laws of nature. Among these images there is one, our body, which is distinguished from all the others. They all seem to vary according to the position which it assumes relatively to them. On closer inspection of it, with the help of science, we find that it is possessed of a nervous system by which it receives impressions from the other images or objects, and reacts upon them. If a section is made of all the afferent nerves of the cerebro-spinal system, "my perception" entirely vanishes. The "only really intelligible effect" is that the current which goes from the periphery through the centre and back to the periphery, is interrupted: consequently, "my body" cannot derive from surrounding things the quality and quantity of movement necessary for acting upon them. In that, action, and only action, is said to be concerned. That "my perception" vanishes also can only

signify that it, as a shadow or a reflex, figures precisely in the totality of images the virtual or possible actions of my body. Although it is difficult to perceive a necessary connexion in the reasoning in this passage, the author's deduction is, that while matter is the totality of images, perception of matter is "these same images in relation to the possible action of a certain image, my body." Science shows further that in the nerve centres there are molecular movements which depend on the nature and position of the objects from which impressions are received. Is "my perception," then, a function of those movements? It cannot be so, we are told, since the image of the nervous system and of these internal movements is only an image of a certain material object, whereas "I represent to myself the material universe in its totality." The *rôle* of these internal movements cannot be to create "my perception." They are destined to prepare, by commencing, the reaction of my body to the action of external objects. Why is it, then, that "my perception of the universe" seems to depend on these cerebral movements, to change when they change, and vanish when they are abolished? The problem widens. These cerebral movements

are inseparably connected with the rest of the material world. In the system of images which I call my perception of the universe, my body occupies the centre. For each of its movements everything changes as if one had turned a kaleidoscope. In the other system which I call the universe, the same images influence each other, but in such a way that the effect is always proportionate to the cause. Hence the same images can enter at once into two different systems: one in which each image varies for itself in the definite proportion in which it undergoes the real action of surrounding images; the other, in which all vary for one only, in the variable proportion in which they reflect the possible action of this privileged image.

To ask if the universe exists in our thought only, or outside of us, is to cause a sterile discussion. No philosophic doctrine disputes that the same images can enter at once into two distinct systems, the one belonging to science, in which each image preserves an absolute value; and the other belonging to consciousness, where all the images are related to the one image, our body, and follow its variations. The question in dispute between realism and idealism becomes clear. Both

doctrines are based on the common postulate: "perception has an entirely speculative interest; it is pure knowledge." That postulate, the author holds, is contradicted by the structure of the nervous system in the animal series; and it cannot be accepted without greatly obscuring the triple problem of matter, consciousness, and the relation between them.

Such is a brief epitome of the reasoning by which the author reaches the conclusion that in the nervous system there is no apparatus to create, or even to prepare, representations. Its function is to receive excitations, to set up motor apparatus, to present the greatest possible number of these to a given excitation. As it goes on developing in the animal series, the points of space which it puts in relation to the growing complexity of the motor mechanisms become more and more distant; wider latitude is allowed to our action. If it is constructed from one end to the other of the animal series in view of action which becomes less and less automatic, must not perception, which develops *pari passu* with it, be also directed towards action, and not towards pure knowledge? And does not the increasing development mark the increasing indetermination allowed to the living being's choice in its

conduct towards things? Starting then from indetermination as a veritable principle, let us try, the author says, if we could not deduce the possibility, and even the necessity, of perception.

It will be seen that the representation of the matter to be dealt with as a totality of images is fortunately adapted to suit the conclusion which is attained. But there is no identity between the material universe as science represents it, and the representations in our perceptive experience. If there were, the dispute between realism and idealism would never have arisen, and there would be no problem set to make contact between the two systems of reality. It will shortly be seen that the problem is made no easier by the author's assumption that perception is destined for action. The inference drawn from the effects that would follow from the cutting of the afferent nerves of the cerebro-spinal system seems to beg the question as to the destination of perception. If perception served no other purpose than to figure possible action for the satisfaction of inferior needs, it might have been dispensed with. Evolution, which in the author's opinion started with automatism, might have adhered to it to the end. The

lower needs would have been more surely and expeditiously served by automatic activities without the encumbrance of zones of indetermination. In truth, the author should have shrunk from making any reference to a destination of consciousness; it savours too much of finalism to be in harmony with his cardinal doctrine of duration. Unless he proves his point that our perception of an object is not in us, but in the object itself, we may abide by the ordinary doctrine of psychology, that the elements of all perceptive ideas are sensations, and extend the author's dictum that "sensation is nascent freedom," so as to cover perception also. Freedom necessitates knowledge. Zones of indetermination signify that the living being has to choose between different modes of action for the satisfaction of its needs. It must therefore know the qualities of objects to be able to choose among them. It is too much to expect that the external object will be so obliging as to "turn towards us its face" that we may see how advantage is to be got from it. By frequent trial, attended with not a few disappointments, we have to learn what its qualities are. The function of perception, on the lowest plane of our experience, is to give us the knowledge which is

indispensable for the satisfaction of our needs, if we are not to be mere automata. In the same connexion a materialistic tendency is further betrayed in the priority assigned to the nervous system. Development in the animal series is said to start from pure automatism. No countenance is shown to the view of Wundt, that in the low forms of life the phenomena are suggestive of the automatic process having been preceded by a process of will-activity. Always as evolution proceeds the author regards the appearance and progress of the development of a nervous system as heralding the appearance and progress of perceptive power.

And now having got so far as the zones of indetermination, we have to see how conscious perception follows as a natural result. Since the objects of which the material world consists are subordinate to and variable with centres of real action in forms of living matter, it follows, we are told, that conscious perception ought to be produced, and it is possible to comprehend how it arises. We learn from the evolution in the animal series that the extent of space which the animal's perception can cover is always proportionate to the length of time which action, as figured in the

perception, has at its disposal. If perception is to minister to action, it must then become conscious; and how it does so is explained by the author's ingenious hypothesis of "pure perception." He calls it an impersonal perception which exists rather *en droit* than *en fait*: but he attaches supreme importance to it as "the very basis of our knowledge of things." In real concrete perception there is always an admixture of memories, so much so that the pure perception is usually displaced by the memories, after it has served the purpose of enabling them to actualize themselves. At the same time he insists that it is the basis of all our knowledge. By it we make contact between spirit and the material world. From science he accepts as fact that the external world is a multiplicity of entities which are all in reciprocal relation to each other, all acting upon each other, so that each of them is a reflection of the whole. Each point of each particular object is continually acting upon all the rest of the material universe, our bodies included. In our pure perception of an object we do not make any addition to it: if we did so there could be no contact of mind with material reality. Contact is made possible by "diminution." The infinite multi-

plicity of actions of all points of the object upon our bodily organism is, so to speak, filtered by our organism. Only the "virtual" actions of the object, which are adapted to our corporeal needs and our motor activities, are arrested and retained; all the rest "pass through." These virtual actions are then reflected back upon the object (an operation which is left entirely unexplained); and, thus reflected, they constitute our perception of the object. The perception, then, is in the object; it is not in us.

It is plain that it cannot be by intuition that the author knows all this. The pure perception is only a hypothesis to account for the actualization of the memories which are said, as a rule, to supplant it. But for the author it is no less needed to account for their origin than for their actualization. All remembered perceptive images must have been perceptions once, and therefore there must have been pure perception anterior to any of them. So it appears that mind in its aspect as perception is, in the author's theory, based entirely on external reality. The perception is not in us; it is in the object. It is part of the infinite multiplicity of actions of the object, which in some mysterious way is discriminated

by our corporeal needs and possible activities. No intellectual principle, actual or implicit, is concerned in its production. Diminution of the object's infinite multiplicity of actions, unconsciously and mechanically effected by our organism, which is so constructed as to intercept the virtual actions and to let all the rest pass through, changes the "presence" of the object into "representation." The transformation has a natural semblance when the object is spoken of as an "image." The change from image to *tableau* is the most natural thing in the world: in fact it is not a change at all; we have been told already that the images are the same images in the material universe and in perception. We may well be told in addition, therefore, that "for images there is merely a difference of degree and not of nature between being and being consciously perceived." It is the very essence of an "image" that it is consciously perceived.

However, apart from the convenient device of calling the external object an image, the author says that consciousness in the case of external perception just consists in the choice that is made of the virtual action of the object. But consciousness has no part in the choice in the account that is given. Dis-

crimination of certain qualities of the object, in view of corporeal needs and activities, is made by the material organism as part of the material world, and in accordance with the laws of nature which govern the material world. The pure perception is a hypothetical mechanical process, and it is vain to try to give it a spiritual complexion by suggesting that part of it is a discrimination which is allowed to be inexplicable.

The absence of any intellectual principles from the process is evident from the illustration given of the perception of a luminous point P. At that point, he says, science localizes vibrations of a certain amplitude and a certain duration. At the same point P consciousness perceives the light. Both are right. "There is no essential difference between this light and these movements provided that the unity, indivisibility, and qualitative heterogeneity which abstract mechanics refuses to the movement is given back to it; provided also that the sensible qualities are seen to be so many contractions made by our memory." We would substitute for memory unit of duration, and remind the author that the elements contracted by the memory would be elementary sensations corresponding to the vibrations, and

not vibrations themselves. There would still remain the difficulty of making contact between vibrations and sensations, between material process and psychic states, which the author himself finds insurmountable between cerebral movements and psychic states. His conclusion from the illustration is that "the point P, the rays which it emits, the retina and the nervous elements concerned, form a solidary whole, that the luminous point P is part of that whole, and that it is certainly in P, and not elsewhere, that the image of P is formed and perceived." The image of P, the unity of the perception, is in the object, part of the solidary whole of a material process. It is not a multiplicity of sensations correspondent to the vibrations revealed by science, and held in unity by the apperceptive principle. If there is any discrimination, it is, in the author's account, conditioned solely by the material process in the solidary whole. There is not a vestige of any mental action.

The pure perception is claimed to be only a return to the naïve conviction of common sense, and certainly intellectual elements are as much ignored in it as they are unperceived by common sense. Presumably it is in the interest of a spiritual conception of experience

that the author seeks to prove against the materialistic psychologist that perception is not conditioned by any intracerebral process; but he lands himself instead in a "solidary whole" of materialistic conditions. He assumes that a real material object is the seat of the perception, an assumption altogether at variance with the view to which he ultimately comes of the real nature of external reality. His representation of the external world as a multiplicity of images or individual objects, indispensable as it is for his theory of perception, is as much at variance with the results of physical science as it is in plain contradiction to his own final conclusions. A theory of perception which will bring common sense *en rapport* with the latest teaching of science must not take for granted the independent existence out of consciousness of individual objects. It must not assume identity between objects or images in the universe and images or ideas in the mind. Perception as yet can only be treated as a purely psychic process parallel with a physical process, but in what way related to it we cannot say in the present state of our knowledge. We are unable as yet to trace in the act of perception any other than psychic elements. We have an immediate

knowledge of it in the concrete; we can analyse it so far, and say with confidence that it implies the operation of certain intellectual principles upon the raw material of sensations; but the gap between them and the vibrations revealed by science is as impassable as that which the author finds between cerebral movements and the psychic process. In his treatment the pure perception is a physical process. A mechanical discrimination by our organism of a certain portion of the actions of a material object mysteriously becomes representation by diminution. If that is not epiphenomenalism, it is at least first cousin to it. The author claims throughout that the pure perception is the point at which contact is made between psychic and physical reality—in other words, between spirit and matter. But in the "solidary whole," from the luminous point P to the nervous elements concerned, there is no trace of any psychic element. Perception is said to have "its true *raison d'être* in our material body's tendency to movement." In every instance of perception there is "a question put," a "solicitation" addressed to our organism by material objects; and the answer is given by an exercise of our motor activities. A hypothetical physical process becomes re-

presentation because evolution, starting from automatism, has attained to "zones of indetermination." It is all very ingenious.

When we come to what is said about concrete perception, we find that it is treated as a composite psychic form of which the constituents are the pure perception, and sensations, and more especially memories. The memories are so essential to the perception in the concrete, that as a rule they entirely supplant the pure perception, because for the supply of our needs we are far more dependent on our past experience than on our experience at the moment. The sensations on the contrary are more a hindrance than an aid in the process. There appears to be some confusion in the author's different statements about sensation. In *Time and Free Will* two classes were given—affective sensations and representative sensations. The latter can only be those sensations which in ordinary psychology are the elements of perception. Here, however, the sole constituents of the concrete perception are, as stated above, the pure perception, affective sensations, and memories: the sensations are said to be rather an impurity than an essential element of perception. To them as its source is traced the error which has led

psychologists to treat perception as an aggregate of sensations. But that seems to have been an error shared by the author himself in his earlier work; and the omission now of any mention of representative sensations may have been necessitated by the importance of seating perception in the object and not in mind, as the point of real contact between mind and matter.

It is not easy to fix the precise meaning of the author's explanation of sensation. At one time he says it "necessarily results from the existence of perception." He calls it "a special form of perception": yet "it is not only a difference of degree, but a difference of nature, which separates perception from sensation"; perception being "the virtual action of our body on other objects and figured on them"; and sensation being "the real action of our body upon itself, and consequently figured in itself." Now it results from "a struggle against the action of external causes": again, "it is the power our body has of absorbing something of the action of external objects upon it." From these varying and rather conflicting statements it can be gathered that the sensation of pain, which is the example given, is just the representation in conscious-

ness of the local effort made in the bodily organism to repair a mischief to the part from some cause outside of or in the body itself. The representation is in the form of pain, because the effort to repair the mischief fails, as the organism "is only capable of action as a whole." It must be left to physiologists to say whether this is a complete physiological account of the nature of pain. It is the author's way of accounting psychologically for the natural and necessary origin of sensation from the existence of perception. It is closely analogous to the passage from "presence" to "representation" in the pure perception. Sensation then differs in nature from perception: it is a necessary result of perception: it is only a special form of perception: in the concrete perception it is rather an impurity than an essential constituent of perception. Some keenness of perception would be needed to see how these statements interpermeate each other so as to form an organic unity of intelligibility.

We shall find that a difference of nature is made out between perception and memory also. In memory we are said to be fairly within the borders of spiritual reality. The results obtained as yet indeed are allowed to

be as consistent with the opinion of the materialistic psychologist that perception is a product of intracerebral movements, as with the genesis of it which the author himself has given. And in fact the only difference between his treatment and the materialistic psychologist's seems to be, that in the "solidary whole" of the pure perception there is a longer chain of materialistic causation than in the other theory. The author reasons that if perceptions originate from intracerebral movements, the same movements ought to have to do with the survival of past perceptive experience. But if there is sure evidence that the function of the brain is not to store and revive memories of perceptive experience as representative, but is something quite different, the conclusion, he says, will follow that experimental proof has been found of his theory of the true nature of perception. That would perhaps be concluding too much from the premisses. At the most it might be said to be proved that the perception no more than the memory can be the product of intracerebral movements: but it does not necessarily follow that the perception must be in the object and not in us.

How is it that the author has failed to see

that he has landed himself in the same difficulty in which he finds both realism and idealism involved? He claims that his theory of perception is entirely in accordance with common sense. Now it is concrete perception that common sense is concerned with. It knows nothing of his pure perception. If anywhere the pure perception is obliterated by our needs it will be in common sense; and therefore there usually remains in perception for common sense only the subjective contribution of memory. Is the author in any better position than the realist, seeing that he has to project the subjective element of memory, commonly the sole constituent by his own account, upon the perception which "is in the object and not in us"? The realist projects the secondary qualities, *i.e.* the representative sensations, upon the entity which is the bearer of the primary qualities, just as the author has to project the subjective contribution of memories upon the pure perception in the object. He cannot escape from that necessity; nor is it in the interest of his theory on the whole to do so. True, he has to maintain the dualism of physical reality and psychic reality, and to make contact between them by his ingenious hypothesis

of pure perception. But no less has he to adhere to his fundamental conception that our whole being, both as bodily organism and as consciousness, is practically destined for action in satisfaction of our needs: so he must equip perception with memories of past experience, that it may function in connexion with the "zones of indetermination" in our practical activities. There is another and far stronger reason, however, why memory is an essential constituent of perception. If it were not, we could have no connected experience, no experience whatever. On the author's own showing, as we shall see shortly, memory is as essential to the infinitesimal of consciousness as it is to the concrete function. It is not merely, then, because the actual experience of the present is of insignificant importance compared with our past experience for determining our choice of action; it is because without memory there could be no consciousness at all, that memory is at least the predominant partner in the unity of perception. And hence the pure perception, as figured by the author, is a sheer impossibility when tested by his own account of what is implied in the briefest possible moment of consciousness. Without the presence of memory, the "soli-

dary whole" of his pure perception would be a case of purely physical causation. Presence could not become representation except to a consciousness. And there can be no consciousness without memory. A show of contact betweeen psychic and physical reality has been cleverly procured by the postulate of pure perception. It has been severed again by the acknowledgment that memory is an essential element, and in most of our experience the sole constituent, of concrete or real perception. Never once has there been recognized the necessity of any original psychic process of relation and comparison, far less of apperception, for bringing together the diverse elements and holding them in unity. There has only been "interpermeation" of psychic and physical analogous to the interpermeation of conscious states in *Time and Free Will*, and not a whit more intelligible.

We have now to consider how far the author's treatment of memory is successful in effecting a transition from material to spiritual reality. The problem is a formidable one in view of his theory of pure perception, on which memory has to be based: and it must be said that again great ingenuity is displayed in the solution

offered. There are said to be two forms in which the past survives. In the one, it is registered in motor mechanisms, or habits of the corporeal organism: in the other, it survives as independent memories. The former is named the motor memory or habit, of automatic nature, which has to be lighted up by the other, or true memory. The two, however, are only moments of concrete memory, in which therefore we may be said to have again interpermeation of the physical and the psychic.

There are said to be two ways in which motor memories may be formed. Every perception is prolonged into either nascent or completed action in the organism. In our ordinary daily experience the same objects pass before us so repeatedly that the actions, at least nascent, into which they are prolonged set up motor mechanisms in the nervous system which "figure" the perceptions. The process by which they are constructed seems to be purely physical. It goes on out of consciousness. The external excitation which is transmitted by the afferent nerves to the centres in the brain, is continued there into movements, and motor mechanisms are set up in the brain which are at all times ready to

respond to similar excitations in the future. These motor mechanisms thus automatically set up in accordance with natural law, are the source of that equilibrium maintained between the organism and its environment which is "the general aim of life." They are the automatic basis of our recognition of present objects, and the medium by which the pure or spontaneous memory rejoins the pure perception so as to form the concrete perception.

The "spontaneous memory," or memory *par excellence*, is a spiritual sphere in which the concrete perception, dissociated in its representative character from the actual or nascent reaction by which it is prolonged, continues its ghostly existence. What the nature of that existence is, and by what process a spontaneous memory passes from mere potentiality to actuality, will be considered later. Here it has only to be remarked that there is more automatism at the basis of spontaneous memory also than we think. "Insane persons give intelligent answers to a series of questions which they do not understand: language functions in them in the manner of a reflex. Aphasiacs who cannot pronounce a word spontaneously, remember correctly the words of a melody which they

sing. They will recite fluently a prayer, the series of numbers, of the days of the week, of the months of the year. Thus mechanisms of an extreme complication, subtle enough to imitate intelligence, can function of themselves once they are constructed." We have seen how these mechanisms are the result in ordinary experience of a materialistic process governed by natural law; and we are entitled therefore, even at this stage, to question the author's *dictum* that there is a difference in nature, and not in degree merely, between the two forms in which, he says, the past survives. It looks rather like a difference in aspect merely, arrived at by analysing a concrete process. By his account there can be no motor mechanism set up in the brain as a prolongation of a perception process, without a representative image, or at least the potentiality of one, being stored in the spontaneous memory: and there can be no pure memory that has not a corresponding motor mechanism into which it can flow. On the occurrence of a perception closely resembling a former one, the motor mechanism which has been set up in the past suffices for the new resembling perception to pass into action, complete or nascent; and a pathway has been thereby

prepared also for the actualization of the "virtual" or potential memory.

It is not always easy to fix down the author to a definite and consistent meaning: he has rather an animistic way of dealing with his matter. Thus he gives a picture of the spontaneous memories flitting about in their ghostly environment, and eagerly on the watch for an opportunity to actualize themselves back into perceptions again. They are, he says, as capricious in reproduction as they are faithful in conservation. When any disturbance occurs in the equilibrium of the sensori-motor system, they come down in crowds to the opening that has been made, all eager to be actualized. The motor mechanism in the brain is ever on police duty, and has the function of inhibiting all of them that are not suitable for being framed into the present situation. Those memories that are best fitted to join it have therefore the best chance of getting through the opening. Here, we are told, is the real association of ideas. So it would appear at first sight that the choice of the appropriate memory-image is owing to the present perception's association by resemblance with a similar perception in the past. Yet that cannot be, for the author finds that two

terms which resemble each other must be brought together first before there can be resemblance found between them. Therefore it is by some inexplicable attractive force that the present perception and the memory-image which is required to "light it up" come together. If we might venture on a humble imitation of the author's charming animistic method, we might remark that there need be no mystery about how the appropriate memory-image finds its way to the perception. It will be the only one of the crowd that can pop into the motor mechanism into which the former concrete perception of which it had been a part had been prolonged, and in which it will find itself *tête-à-tête* with the new resembling perception.

There is a second way in which a motor mechanism can be set up, so that there is no occasion to wait for the accidental recurrence of a situation to obtain by its repetition an opportunity of substituting for the "fugitive" spontaneous memory the motor mechanism which can take its place. We are told that we can by an effort retain the fugitive image and keep it under the regard of consciousness for a limited time, sufficient for a motor mechanism or motor habit to be formed; but

that seems a needless expenditure of effort, seeing that the motor mechanism set up in the former way in habitual experience availed so well in the cases of the aphasiacs and insane persons cited by the author. He forgets for the moment how little call there is in his theory of memory for the intervention of voluntary effort in a second way of forming motor mechanisms. The examples given of the automatism underlying spontaneous memory are reminiscent of the cases of unconscious mental modifications referred to by Sir William Hamilton. But Hamilton had in the Ego a bearer for the unconscious, or subconscious mental states. The author has no bearer on which to rest them, and the reader has to choose for the seat of the memories in the cases cited by him the dwelling-place he provides for them in the "unconscious"—of which more hereafter—or the more tangible motor mechanisms which he has set up in the brain. The motor mechanisms are given as part of the physical pathway from the excitation to the reaction of the organism: they are what the author finds to be interfered with or destroyed in lesions of the brain. They are what the materialistic psychologist will pounce upon in the author's system as the indispens-

able basis of this new theory of memory. He will find, in addition, that the author admits that automatism is at the basis of our recognition of a present object: the recognition is "acted by our organism before it is thought." And when the "acted" recognition has to be supplemented and "lighted up" by image-memories of the past, we are sent away to the "unconscious," a veritable land of Nowhere, in which to capture them. On the supposition that there is a noumenal Self, the bearer of the states of consciousness, which is not the mere organic unity of the states themselves, we can hail with satisfaction the evidence adduced that the brain can neither engender perceptions nor be the seat of memories, without having to take refuge in his theory of the unconscious. And we cannot find fault with the materialistic psychologist for seeking a more substantial storehouse for his memories than the unconscious.

As we have had in the author's system two forms of perception, the pure and the concrete; two forms of sensation, the affective and the representative; two forms of memory, the motor and the spontaneous; so we have two forms of recognition, the automatic and the attentive. Pathological cases are cited as

affording conclusive evidence that the process of recognition cannot be accounted for by the ordinary psychological theory of an association of a memory with a perception. A case of psychic blindness is given in which the patient could with his eyes closed describe the town he dwelt in and walk about in it in imagination: once in the town, everything seemed new to him: he recognized nothing, and could not find his way. Here the conscious conservation of a visual memory did not suffice for the recognition of a similar perception. On the other hand, in a well-known case of the complete eclipse of visual images studied by Charcot, there was at least a certain general recognition of objects with which the patient had been familiar. The conclusion drawn from it by the author is that there may be recognition of a present object without the possibility of the intervention of any memory-image of it, just as in the former case there was conservation of the memory-image without the power of recognizing the corresponding visual perception. In fact there is, according to the author, a recognition *on the instant*, of which the body alone is capable, without any memory-image intervening. It is an action and not a representation: it is what is injured

or destroyed by lesions in the brain, as in the cases just cited. The feeling of recognition is said usually to have its root in the consciousness of the organized motor reaction which accompanies every familiar perception: "we usually act our recognition before we think it."

In attentive recognition, is it the perception which determines the apparition of the memories mechanically, or do the memories come spontaneously before the perception? On the reply to this question, the author says, depends the nature of the relation between the brain and the memory. If the shock which in every perception is transmitted by the nerves to the perceptive centres and propagated to other cortical centres, gives rise to the memory-image, it would be convincing proof that memory is a function of the brain. But if it can be shown that the perceptive shock merely sets the body in a certain attitude into which the memories come and insert themselves, the material shocks are exhausted in producing this motor adaptation, and the memory (*souvenir*) will have to be sought elsewhere. The author finds the latter of these two hypotheses confirmed in pathological cases. Lesions of the brain affect the motor memory; naturally they cannot affect or

destroy the spontaneous or representative memory if it has its seat in the "unconscious." Wherever its seat may be, it is not in the brain; but that being proved, does it necessarily follow that it is where the author places it? Wundt cuts the knot by holding that there is no sure mark of distinction between the so-called memory-image and perception; that there are no ideas stored in the memory, there is only creation of new ideal content more or less resembling past states. Doubtless our author saw the inconsistency of that position with Wundt's great doctrine of Apperception, which involves a total effect of our earlier psychic experiences on the conscious state of the present moment, and which is akin to our author's interpermeation of states. He is not content to found a spiritual conception of experience on interpermeation or on will-activity as Wundt did; so he must needs have a duplicate enrichment of the present from the past by means of memory; and as no better substrate can be got for it from his presuppositions, he can only provide a lodgment for it in "the unconscious," in other words, the old abyss of non-being from which Wundt was saved by clinging to his principle of will-activity.

It has to be remembered that the cardinal doctrine of the Bergsonian philosophy is that consciousness has a practical destination, and therefore that the sole *raison d'être* of memory for him is its practical importance in relation to action. The phenomena of psychic blindness and psychic deafness establish the fact that lesions of the brain do prevent the memory from being actualized into action. The organism is disabled by them from assuming in the motor mechanisms, which had been set up in the cortex, the attitude necessary for attracting the "image" from its "virtual" or potential existence in the unconscious. It would seem, then, that the materialistic psychologist has little reason to grudge the author his mere potentiality of memories abiding in the unconscious, when he gets the acknowledgment that the possibility of memory actualizing itself in the concrete depends on the functioning of a motor mechanism which has been automatically set up in the brain. From the materialistic point of view no more is required to entitle the psychologist to say that the brain is the seat of memory in any practical sense. We may find that the author has also supplied him with the means of accounting for the representative aspect of memory.

The discovery of centrifugal perceptive fibres is taken by the author to indicate that besides the afferent process which carries the exterior excitation to the centre, there is regularly another inverse process which takes back the image to the periphery. There will thus be memories immediately consecutive to the perception which also take part in the act of attention or distinct perception. The perception is then reconstructed by what is called an effort of synthesis in the following manner. The memory chooses in turn diverse analogous images which are sent in the direction of the new perception. The images are suggested [or attracted ?], and the selection is presided over by those movements in the brain by which the pure perception is continued, and which serve as a common frame for the perception and the remembered image. There the "spontaneous memories" join the consecutive memories and the pure perception, are "nourished from its substance," and so acquire force and life enough "to exteriorize themselves with it. . . . Every memory-image capable of interpreting our actual perception, finds its way into it so well that we cannot discern which is perception and which is memory." The author indeed speaks of in-

creasing efforts of intellectual expansion in the process of attentive perception; but what he has elsewhere said of an intellectual attitude may as well be applied to an intellectual expansion, that "it is not a clear idea." From his automatic "suggestion" of analogous memory-images, and automatic "selection" among them and guidance of the process, all by the motor mechanisms as has just been described, the reality corresponding to his symbolic representation of the increasing efforts of intellectual expansion, can be nothing else than a series of automatic processes in the nervous system. A full analysis is given of the process by which the auditory recognition of spoken discourse is effected in attentive perception, and it is found that there is, first, an automatic sensori-motor process, and second, an active, "and, so to speak, excentric projection of memory-images." We have just seen how automatically the selection and excentric projection of the memory-images are effected. The auditor in a conversation is said to place himself right away (*d'emblée*) among ideas corresponding to those in the mind of the speaker; but how could he see any correspondence unless he already knew what the speaker's ideas were? We shall see

how the author becomes conscious of such a difficulty when he has to fit into his system a theory of the origin of the "general idea." The facts in his illustration here can on his theory be nothing else but a number of hypotheses springing up rapidly in the automatic manner described.

The author indeed follows up that description with a somewhat different account. "Distinct perception," he says, "is the result of two currents in contrary directions: one centripetal, comes from the exterior object; the other, centrifugal, has for its point of departure what we call the 'pure memory.' The first, alone, would only give a passive perception, with mechanical reactions accompanying it: the second, left to itself, tends to give an actualized memory, more and more actual in proportion as the current is strengthened. The two currents, reunited, form at the point where they join each other the distinct and recognized perception." He omits the alleged fact, as previously stated, that the new perception attracts the memory-image, which has been suggested and selected by the motor scheme, thus rendering the centrifugal current as mechanical as the centripetal one. In a footnote in which the author

states the difference between his own theory of distinct perception and that of Wundt, he says that "in the cerebral substance there are organs of virtual perception, influenced by the intention of the memory (*souvenir*), as there are at the periphery organs of real perception influenced by the action of the object." It must be noted that the phrase "intention of the memory" is equivalent to the pure memory, as "intention" is said later to be "what we call the pure memory." What these organs of virtual perception in the brain are, appears from the statement that "the remembered image sets agoing the same nervous elements as the first perception." "The process by which the virtual image is realized is nothing else than the series of [automatic] stages by which it becomes of use to the action of the body." The author undertook to prove that in the recognition of present objects there is, besides the recognition made by movements when it proceeds from the object, a recognition by representations when it emanates from the subject. The first half of the proposition has been amply proved to be an automatic process: but the second half has not been verified. Even if it were granted to the author that the

characteristic process of recognition is centrifugal, inconsistent as that would be with his view that habitually "our recognition is acted by our organism before it is thought," we have seen that the actualization of the memory-image which is involved in recognition by representations, takes place as a mechanical process in the organism.

The author now approaches his problem from a different point of view, and perception is got in a different way. By a vigorous effort of introspection we learn that what we call our present is an instantaneous section made by perception in that continuous flow of our becoming which constitutes reality. The present moment, viewed as the meeting point of our past and our future, is a mere conception like a mathematical point, to which no concrete reality corresponds. When we try to think it, it is already past, and our future is determining itself. In its aspect as past, it is sensation; and in its aspect as becoming future, it is movement. Our immediate consciousness is sensori-motor, and the instantaneous section of the continuous becoming made by perception is just the material world, which is "resurrected" at every moment and does not endure as we

endure. This looks much like a scaffolding for the erection of an idealistic philosophy of experience; it is further supported by what the author represents as the origin of our belief in the permanence of material reality. Our immediate knowledge of it is only a present knowledge. But that present knowledge is big with promises or threats for us, and all our concern is about the future. Hence our present perception is one link in a chain which we prolong into the future indefinitely. "What," the author says, "can a material object which is not perceived, an image which is not imagined, be if not a kind of unconscious mental state?" It would thus appear that the *esse* of the material object is *percipi*. It comes and goes with our consciousness of it in perception. When it is not in consciousness it is only an unconscious mental state.

But Prof. Bergson cannot go the whole length of idealism. If he did, how is he to reconcile this later view with his former one, that there is a universe of real material objects all acting upon each other, and by their action upon our organism furnishing in the pure perception the raw material with which the whole content of perceptive experience is con-

structed? He has another use for his new conception of material reality. Although when not in consciousness it can only be a kind of unconscious mental state, it does not cease to be a reality, for we have no reason to suppose that a mental state cannot exist in the unconscious. This new way of viewing material reality thus enables him to find a seat for the pure memory in the unconscious. No one doubts the permanent existence of material objects, although when not perceived they can only be conceived to be unconscious mental states. We have as good, nay stronger reasons for believing that the pure memories likewise continue to exist in the unconscious; what makes it difficult for us to do so is because the past, as past, has little interest for us compared with the interest we have in the future. Our tendency is "to open the future before us and close the past behind us." How does that harmonize with the author's principle of Duration, with the dependence of concrete perception on memories as its main and not seldom as its sole content, with "the deep roots which memory has in the past, and the feeling that is retained of the memory's 'original virtuality' even when it is actualized into a present state?" There is no convincing force

in the reason given for our greater readiness to believe in the permanence of material reality than in the permanent existence of the memory-image: there is another and a better reason supplied by the author himself. The pure perception, he says, does not exhaust the properties of the material object. It is only its "virtual action" which appears and disappears with our consciousness. It has an "infinity" of actions upon all other points of the universe, and is therefore very far from being dependent on consciousness. The author tells us in fact that it is that infinity of actions of the object beyond what is given in perception that is the ground of objectivity. It is difficult to imagine therefore what could have induced him to approach so close to an idealist conception of the nature of matter, as to say that when the material object is not perceived it can only be conceived as an unconscious mental state. Had he been influenced unconsciously by the need for providing some basis for belief in the unconscious as a suitable shelter for the spontaneous memory?

Two conditions are said to be implied in matters of experience: first, presentation to consciousness; second, logical or causal connexion of what is thus presented with what

precedes and what follows. These two conditions admit of degrees: while both are necessary, they are unequally fulfilled. In actual internal states the determination of the present by the past leaves wide room for contingency, but the presentation to consciousness is perfect. In *Time and Free Will*, however, the author barred causality entirely out from the deep-seated states, and pronounced it to be an inconceivability in that sphere. Now he allows at least some degree of it in all psychic reality. In material reality the causal connexion is perfect: the presentation to consciousness is never more than partially fulfilled, because the multiplicity of unperceived elements which connect the material object with all the others, seems to "contain in it and conceal behind it infinitely more than it lets us see." We must conclude, therefore, that existence in the empirical sense of the word implies always at once but in different degrees conscious apprehension and regular connexion. The author is here at variance with what he has said previously, and especially in *Time and Free Will*.

From his next point of view he even regards the difference between mental and physical as only one of degree and not one of kind.

Science in its latest results has abandoned the hypothesis of the material atom, and substituted for it the electron. The ultimate external reality of science is therefore a mode of motion. This opens the way to a new conception of the genesis of experience, which fits in with our immediate consciousness as sensori-motor, and should have cancelled the need for the author's hypothesis of the pure perception "in the object and not in us." Contact between mind and external reality is now made by shocks to the nervous system caused by vibrations. These are discriminated by the different sense organs, and the vibrations being contracted by our unit of duration are transformed into the different orders of representative sensation. There is not a difference of kind, we are told, between the vibrations and the sensations. If our unit of duration could be prolonged sufficiently, the sensations would become vibrations, and there would be complete identity between our inner experience and the external reality. From this point of view the associationist would be justified in regarding sensation as the sole constituent of perception, and the materialist in regarding soul-life as a mere prolongation of material reality, or more correctly of energic reality.

There is, however, a way to meet him which is not open to the author, owing to his small regard to will-activity in *Matière et Mémoire.* Science has not reached any definite conclusion yet as to the nature of the electron. High authorities say that it is a particular state of the ether; but it is not known whether the ether is really a material substance. There seems to be a gradual *rapprochement* between the will-activity of our inner experience and the power or force which science finds stored in the electron: and it may yet be a conclusion of scientific research that the ultimate reality of the universe is will-activity as Wundt supposed.

The author's presuppositions, however, lend themselves better to the service of the epiphenomenalist, more particularly in his view that the "presence" of an object becomes "representation" by "diminution." When this is taken in connexion with his final view of the external reality as movement, it would appear that it leads naturally to epiphenomenalism as the true conception of our inner experience; for it may then be shown how the presence of the external reality, whether regarded as matter or as movement, becomes mental representation in affective and repre-

sentative sensations in the same way as in the pure perception. Our body, being part of the external universe, must be sending forth actions from all its points upon all the other points of itself and on all the rest of the universe in infinite number. Of the shocks which it thus receives by the reciprocal actions of its parts, all the rest are "eclipsed" by those emanating from a part of our body which is sustaining injury from some physical cause, external or internal to the body. The automatic movements which express the ineffectual local effort to repair the injury is the author's own explanation of the intensity of the pain that we experience. There is thus discrimination by diminution of the action of the organism upon itself which, according to the author's principle, becomes representation in the form of pain. In sensations of pleasure there is material reality in what the author calls movements in the body caused by the attraction of the pleasurable object. There is a similar "eclipse" by these movements of the general effect of the body's action upon itself, and again by "diminution" these bodily states, caused by the attraction of the pleasurable object, pass into "representation" in the form of sensations of pleasure. The epipheno-

menalist gets warrant from Prof. Bergson to draw that conclusion, seeing that the Professor has said that affective sensations are only a particular kind of perception, and adheres to the last to his view that contact between mental and physical reality is by the medium of the pure perception.

Turning now to his theory of memory, we find that in one of its aspects, as motor memory, it is a mechanical prolongation of the action of the external object undergone by the organism in the pure perception: and in its other or spontaneous aspect, it is a prolongation in the "unconscious" of the quick and easy change from "presence" to "representation," its existence in the unconscious being that "virtual" or "potential" state which the author says "is appropriate to things of the mind." The pure memory as the ghostly tenant of the unconscious is the "ghost of the perception"; the ghost, that is, of the "virtual or potential action of an object," or in other words, of a part, discriminated by our organism, of the infinity of actions which constitute the so-called material universe. No more than perception does it introduce us to spiritual reality, unless spiritual reality is the unconscious, and potentiality, as the author says,

"the state appropriate to things of the mind." We are told it is that memory that makes us free: that by bringing the past into the present, it enables us more and more to influence the future. But these memories, the author says, are legion; an infinity of states even in their momentary reunion with a pure perception. What reason have we for supposing, therefore, that the infinity of elements beneath the resources of a memory of the highest tension are less rigorously ordered than the intermediaries between any two successive conscious sensations are said by the author to be? And if such were a correct account of the infinitesimal phenomena of memory, how could man be a free personality?

We are free, the Professor says, because memory empowers us to slip through the meshes of necessity; thereby spirit penetrates matter, thus asserting its freedom; and there are different degrees of freedom according to the different degrees of tension of the memory. But memory is defined as the synthesis of an infinite number of pure perceptions, each of which as the virtual action of an object is amenable to the law of causation. Then it is not by an act of will that the concrete perception is relegated to the realm of memory,

to rest in the unconscious till attracted back to become part of perception again. Nor can we prevent either its storage in the unconscious or its reappearance. Most likely the pure memory is never actualized except by the attraction of a new perception. Even in dreams during sleep the images are probably invoked by some contact with external reality through some one of our senses; and on the Bergsonian theory it is certainly by the intermediary of cerebral states that the pure memory is actualized. It is process truly. Its real being is action. But when we scan the action, and abstract from the cerebral modifications, Bergson leaves us with nothing but the "virtual" as what is proper to spirit.

What is the real service given by memory? As synthesis of past perceptions it is loaded with the knowledge of natural processes which are links in the chain of causation. Instead of giving us power to penetrate matter by slipping through the meshes of necessity, memory shows us how to attain our ends by accommodating our action to natural necessity. We obey that we may profit. Thus the destination of consciousness as memory, and therefore as perception also, is knowledge primarily to action; and that points the way

to a different philosophy of experience from both the Bergsonian and that of the epiphenomenalist.

But we have not yet exhausted the list of the author's services to epiphenomenalism. They are not less notable in his theory of the formation of the general notion than in his theory of memory. He attacks the difficult problem of the origin of general ideas with his customary boldness and ingenuity, yet without any sign of consciousness that he is playing the game of the materialistic psychologist. In the fact that abstraction and generalization are both involved in the formation of the general notion, he considers that the logic of the intellect is prisoned in a circle from which it cannot escape. Once more it has stultified itself by regarding the psychic process as purely speculative. What we erroneously suppose is a purely mental activity, is, like perception, sensation, and memory, fundamentally an automatic process in the organism. We may pass by as not important for our present purpose the author's criticism of the rival theories of nominalism and conceptualism, and at once take up the substitute he offers for them. As the distinction of individual objects is said to be a "luxury of perception,"

so the clear representation of general ideas is called a refinement of intelligence. Particulars of time and place are by an effort of reflection effaced from a representation, and there is implied a remembrance of images and an observation of differences of which the superior animals are capable in degrees inferior to man. We begin, therefore, neither by perception of the individual nor by conception of the kind, that is, neither by abstraction nor by generalization, but by a confused feeling of *quality* or resemblance. It is neither generality fully conceived nor individuality distinctly perceived: both of these are engendered by dissociation. Reflective analysis purifies it into general idea; discriminative memory solidifies it into perception of the individual.

Owing to the utilitarian origin of our ideas, our primary interest in a given situation is to apprehend whereby it can respond to a tendency or a need; and need goes straight to resemblance or quality before it creates individual differences. The herb *in general* attracts the herbivore. The colour and odour of the grass, felt and undergone as forces, are the sole immediate data of its external perception. On that basis its memory yields contrasts from which differentiations arise.

It then distinguishes one district from another, one field from another. The sense of resemblance, however, implies no psychological effort: the resemblance "acts objectively as a force," and causes identical reactions in virtue of the physical law that the same general effects follow the same deep causes. Muriatic acid always acts in the same way on the carbonate of lime, whether it is in the form of marble or chalk; but no one says that it distinguishes the generic characters in the two species. There is no essential difference between the operation by which that acid separates from the salt its base, and the act by which the plant invariably extracts from the most varied soils the same elements that are to serve it for nourishment. Imagine a rudimentary consciousness like, say, that of the amœba moving in a drop of water. It feels the resemblance, and not the difference, of the various substances which it can assimilate. From the mineral to the plant, from the plant to the simplest conscious beings, from the animal to man, we trace the progress of the operation by which things and beings apprehend in their *entourage* what attracts them, what practically interests them, without any need to abstract, simply because the rest

of the *entourage* has no effect on them. This identity of reaction to superficially different actions is the germ which the human consciousness develops into general ideas.

It may be said that notwithstanding physical influence of the environment, the author leaves ample room for psychic activity in the development of the general idea from the physical reaction. But much depends on what he says about that subsequent development; and we find his views regarding the further process expressed in what he gives as the true law of the association of ideas. We learn nothing, he says, about the mechanism of association from the statement that every idea which arises in the mind has a relation of resemblance or contiguity to an anterior mental state. There are no two ideas which are not related to each other in some respect. The real question is, how is selection made among an infinity of memories which all resemble the present perception in some way; and why does only one among them emerge into the light of consciousness? We perceive resemblance before we perceive the individuals that resemble each other; and we perceive the whole before the parts in an aggregate of contiguous parts. The variety of individual

differences is added on afterwards. For the greater convenience of practical life we break up the continuity of the real and go from the whole to the parts. Association is not the primitive fact: we begin by dissociation. The tendency of every memory (*souvenir*) to group itself with others is explained by a natural return to the undivided unity of the perception.

We have seen in the mechanism by which a memory is actualized what is the reality of association by resemblance as conceived by the author, since the perception in the situation that is present to the organism acts by its resemblance to past perceptions as an attractive force to draw to it from the "unconscious" corresponding memories that will be suitable to unite with it. And at the same time we see what is for him the reality of association by contiguity, since movements that were consecutive to old perceptions are reproduced, and bring in their train an indefinite number of actions that were co-ordinated with them. "Thus we apprehend, almost fused together at their very source . . . not thought, doubtless, but acted and lived . . . association by resemblance and association by contiguity. They represent the tendency of every organism to extract from a given situation what

in it is useful, and to store up the eventual reaction in the form of motor habit to be of service in situations of the same kind."

There is in man no purely sensori-motor state. Psychological life, we are told, oscillates between the extremes of "dream" and "action." The sensori-motor state gives direction to the memory: is in fact only its actual and active extremity. Memory, with the whole of our past, strains forward to insert as much as possible of its contents into the present action. Hence an indefinite number of possible states of memory. "The entire memory responds to the present state by two simultaneous movements, one of translation, by which it brings down the whole of previous experience and, without being divided, is contracted more or less in view of action: the other of rotation, by which it turns towards the situation of the moment, to present to it its most useful aspect. The various forms of association by resemblance correspond to these different degrees of contraction." As memory contracts, the images take a more common form; as it dilates, they become more personal, and thus enter into an unlimited multitude of different "systemizations" which ought to constitute the subject-matter of the *new psychology*.

As there is an indefinite number of different planes of association by resemblance, so there is of association by contiguity. On the plane most remote from action each memory is connected by contiguity with the totality of the events which preceded and followed it. At the point of action in space contiguity only restores, in the form of movement, the reaction immediately consecutive to an anterior similar perception. Every association by contiguity implies a position of mind intermediate between the extreme limits of dream and action. The nearer the mind places itself to action, the more contiguity tends to participate in resemblance, and so to be distinguished from a simple relation of chronological succession. All this of course has to be read in the light of what the author had previously stated regarding the manner in which the memory-image had been suggested by the motor mechanism which inhibits all such memories as are not suitable to be framed into the present situation, and had then been attracted from its obscurity by the new perception.

On a survey, therefore, of the whole course of psychic experience as it is represented by Prof. Bergson, the only semblance of spiritual reality that is given is the pure

memory as stored in the unconscious. The pure perception (a mere hypothesis, and, as we have seen, an absolute impossibility in its alleged purity, although it is the indispensable foundation of the whole system), is moreover in its "solidary whole" a mechanical process. No less so is the affective sensation, seeing that it is only "a particular kind of perception." The memory-image itself is only the ghost of the perception, which, ghostlike, fades away out of sight in the unconscious until it is recalled to life by a new excitation from the outer world. The general idea or notion is the result of a process which the author traces in the mineral world, the vegetable kingdom, and the whole animal series from the amœba upwards; and in man is completed by a law of the association of ideas which, in its complementary aspects of association by resemblance and by contiguity, "represents the tendency of every organism to extract from a given situation what is useful." The only subjective elements which are mentioned are sensation and memory, and of both of these a mechanical explanation is given up to the limit of the disappearance of the memory in the unconscious. In his first work the author emphatically discarded

the intellectual factors of experience as given by Kant, and went so far as to say that if Kant had been vouchsafed an intuition of the real nature of time as duration, the *Kritik* need not have been written. He follows Wundt in dispensing with the noumenal Self as the substrate of psychic phenomena, and provides a substrate of his own in the unconscious, which is made to serve for external phenomena also when he requires a support for the provision he makes for the storage of our past experience. His development of the general notion from an "identity of reaction to superficially different actions" (which is common to all things and beings from the mineral upwards), in accordance with what is given as the true law of the association of ideas, is still the same kind of mechanical process which will serve the uses of the epiphenomenalist. "This idea of generality," he says, "was in its origin only our consciousness of an identity of attitude in a diversity of situations; it was just habit ascending from the sphere of movements towards that of thought. But from kinds thus mechanically sketched by habit we have passed, by an effort of reflection upon that operation, to the general idea of kind; and this idea being

formed, an unlimited number of general notions can be voluntarily constructed. It is not necessary here to follow the intelligence in the details of this construction." The author, however, has declined the aid of any intellectual principles and pronounced them to be an illusion. What else can he fall back upon but the magical transformation of "presence" into "representation" and his mechanically functioning association of ideas? His second magical feat of bounding *d'emblée* into a mysterious storehouse of memory is not less astounding than his former one. Yet he claims that having thus attained to the general idea of kind, he has made good his assertion that the categories of the understanding are an illusion, and has cleared the way to the highest reaches of intellectual achievement.

Prof. Bergson's system of philosophy is built on a foundation of sand in the pure heterogeneity of becoming, inner and outer, and by making our inferior needs the demiurgus of our type of consciousness. He claims to have by a vigorous effort of intuition reached a different type of consciousness from the ordinary one. It has the appearance of having been reached by discursive reasoning in

advance upon the incomplete ideas of previous thinkers, and in the same direction as they. But the system he proffers does not hold together. If states of consciousness so permeate each other as he gives out to the growing enrichment of the present by the past, instead of that being a *raison d'être* for memory, it would render memory superfluous. Our knowledge ought then to be all and always intuitive, and our action be so closely linked to our knowledge as to make us conscious automata. There should be no occasion for needs to break up the continuity of states in the way Bergson says they do: needs would be practically met by automatic action, and if the satisfaction of them had been the sole end of consciousness, we should have remained more closely akin to the amœba. At the highest, no reflection beyond an introspection of our enriched present should have been called for. If, on the other hand, it is by the intermediary of memories that the present is enriched by the past, the new intuition of consciousness tells us nothing that we did not know before.

As to the popular, and inevitable, conception of external reality, would not our unit of duration be a more likely agent than our

needs for translating the ultimate reality of science into the fact of experience? Bergson has his finger on it in one of his own illustrations. Our sensation of redness is due to the contraction of billions of vibrations, the reality of science, within our unit of duration. This is one instance of it functioning as demiurgus for us. A being with a different unit of duration from ours could not have our sensation of redness. In the sense of hearing also Bergson instances how musical sounds vary in a direction towards homogeneous vibrations. Why not extend the influence of our unit of duration to sense experience generally? How could our needs create the distinction we see between objects in space? Do our needs require us to break up the continuity of the very heavens and people it with a multiplicity of stars? Visually we distinguish objects as coloured and as against a background of space. Their colours are determined by our unit of duration spanning certain numbers of vibrations; and the background of space is a necessity of our mental constitution. We can have no conception, no experience of heterogeneity without a background of homogeneity. The ordinary consciousness of external objects juxtaposed in space is in this way viewed quite consistently

with the scientific conception. But as determined by our unit of duration, no effort of introspection could extrude it; as Bergson says, it can extrude the convenient illusion created by our needs. In his system there is no end to the illusions so created. Space, it turns out, is an illusion created by them, an imaginary network spread under the non-spatial concrete extended that our needs may decompose the concrete extended into individual objects. In his first work Bergson had represented space as a reality, and had said that Kant, "far from shaking our faith in the reality of space, has shown what it actually means and has even justified it." He then made out homogeneous time to be no more than a misapplication, owing to our needs, of homogeneous space, and said that Kant's great mistake was to take time as a homogeneous medium. Now, finally, he reduces both homogeneous space and homogeneous time to illusions created by our needs. The misleading influence of our needs as regards the apprehension of truth, he thinks, has intruded mischievously into the conceptions of science, although the same influence is convenient and even necessary for ordinary and social life. The habit of thought engendered by them led to the conception of atoms discon-

tinuous and indivisible. Science has now got beyond that: but Lord Kelvin's vortex rings at first pleased him no better, for since they are movements within a homogeneous and incompressible fluid, "between its parts there is neither an empty interval which separates them, nor any difference whatever by which they can be distinguished. Hence all movement within this fluid is really equivalent to absolute immobility, since before, during, and after the movement nothing changes and nothing has changed in the whole. There can be no contact between mind and such an external reality." Is it by intuition or by discursive reasoning engaged in solving a problem that Prof. Bergson arrives finally at the conclusion that movement is an absolute, that it is the change of a state rather than the transport of a thing, that it is the true external reality, and that in every movement it is the whole universe that moves, that is, that changes its state? Is his final view made more compatible with Kelvin's vortex rings, seeing that he makes the slightest change of state a universal change?

Only one step more is needed to be taken by discursive reason, or one new intuition to to be vouchsafed, to bring mind and matter

into perfect accord. The concrete non-spatial extended, which is "absolute movement," has to be endowed with sensation. Is it to intuition or to Haeckel that the Professor is indebted for that final endowment of the external reality with sensation? He seems to be in some doubt about how sensation got into the external world of absolute movement. When the material universe was yet for him a multiplicity of objects juxtaposed in space, he thought that in pure perception there was a kind of barter between the virtual action of the object on mind, and the reflection of it back on the object, so that something of sensation was put into the external object, and something of extension was communicated to the perception in the mental sphere. The incompatibility between extended and unextended is now got over by the notion of extensity, which is not space, and which is common to both physical and psychic reality: that between quality and quantity, by the identification of the sensible quality with the quantitative vibrations revealed by science: that between necessity and freedom, by the hypothesis which the author frames (at variance with his own repeated statements regarding the rigorous causal necessity in the external

world), that there is probably contingency in the infinitesimal processes of nature, which escapes the observation of science, and at least some degree of causal connexion between all psychic phenomena; although he had formerly pronounced the causal relation to be an inconceivability in conscious life. But the evolution of his thought has brought him to lay down two conditions of all reality of experience, internal and external: (1) some degree of presence to consciousness; and (2) some degree of causal relation; the former being only the predominant feature in psychic reality, and the latter the predominant feature in physical reality. In all psychic reality, he now holds, there must be some degree of causal relation; and the universal movement, which is the external reality, must be present in some degree to a consciousness. The idea of presence to a consciousness seems in the latter to be stealthily gliding over to the idea of a possession of consciousness, seeing that it has been gifted with sensation.

Prof. Bergson has erred by pushing to an extreme the interpermeation of psychic states. The most that can be said is that simultaneous states do considerably modify each other; that past states influence the

present enough to modify character, though they cannot change it fundamentally; but that states of consciousness do not so permeate each other as to dispense with the need for memory. Some interpenetration of states is doubtless the "how" of the continuity of consciousness: but it does not store up the past in the present.

The author's great powers have been used in vain in an attempt to deduce human experience in a mechanical way by a progress from below.[1] His fundamental conceptions have a disconcerting tendency to assume new aspects as the changes of his point of view require. The final result of his philosophizing, which he claims to be a reconciliation of philosophy with the convictions of common sense and the latest findings of science, is as much at variance with the beliefs of common sense as with what he calls the "artificial systems" of science.

[1] See the first sentence of the Introduction to *L'Évolution créatrice*.

CHAPTER III

CREATIVE EVOLUTION

In his first volume, *Les Données immédiates de la Conscience*, M. Bergson remarked that in the sphere of life at least duration seems to operate as a cause; and he further suggested that a new kind of energy might yet be discovered which might differ from the *vis viva* of Leibnitz and the modern principle of potential energy by rebelling against calculation. A brief interval of years was filled up by the application of his new principle to the problems discussed in *Matière et Mémoire*. The line of thought pursued in that volume and subsequently seems to have moulded his fundamental conceptions into the later forms which enabled him to extend the sway of Duration from conscious experience over life in general by his theory of creative evolution. He has now left far behind the conception

of space as an external reality, and of the real external object in which our perception is seen and not in us. At first external objects were said not to endure as we do: they only appeared as we were conscious of them, and disappeared when we were not. They were said to be ceaselessly recommencing, and we could only be certain when they reappeared to our consciousness that in some mysterious way they had changed. Later we were told that when they were out of consciousness we could only conceive them as unconscious mental states: yet we had a perfect right to accord to them, as to our memories, a real existence in the unconscious. At the end of *Matière et Mémoire* we learned that all "division of matter into independent bodies with absolutely determinate contours is an artificial division"; that the external reality is movement, a true absolute; and that space is only a net as it were spread under it for us to carve objects in it according to our needs. We had got a considerable way towards an easy unification of spiritual and physical reality when we found in the treatment of the pure perception that "presence" becomes "representation by diminution." To assume the presence of the object is simply to beg the question of perception,

for the object could not be present otherwise than to a consciousness. Now, under the auspices of the principle of Duration, "which signifies invention, creation of forms, continuous elaboration of the absolutely new," we are brought into the presence of the new theory of Evolution, which is to go beyond anything that mere intellectuality can furnish. The two poles of reality are respectively a Supraconsciousness and Spatiality. All is process. Between the poles there are two opposing movements of "ascent" and "descent," the former towards spirituality and freedom, the latter towards materiality; space, or "zero," being the ideal limit of materiality, and intuition and freedom the ideal limit of spiritual reality. Between the two poles are all the grades of possible being, any particular stage implying all the stages between it and zero. "Duration" is rather eclipsed by a new active principle, the *élan de vie*; at the most, it now figures as a form conditioning the creative efficiency of the *élan*, as to other thinkers time is the form of inner experience.

The new theory of Evolution is founded ostensibly on what its author considers to be the most indubitable datum of conscious experience. We found no convincing force, how-

ever, in the illustrations given in *Time and Free Will* of the thoroughgoing interpermeation of psychic states, which led him to pronounce our mode of thinking in ordinary experience and in science to be an artifice engendered by our material needs. Even if continuous creative activity is granted, there seems to be no reason for endowing time with the creative efficiency. The author dwells much on the reciprocal influence of all parts of the universe on each other. Time regarded in abstraction from the universal interaction is a form void of content, which cannot be the ground of the process of change, the production of novelties, and all the phenomena of evolution. And if the Bergsonian principle of Duration or concrete time means just that universal interaction, we have been told nothing that we did not know before. The radical mechanistic and the radical finalist conceptions of evolution are both rejected because they conflict with the principle of concrete time. By assuming that all is given, in the one case in causes at the beginning from which all that follows is a necessary result ; in the other, in the preconceived end which governs the process ; time is left with nothing to do ; and "if time does nothing, it is no-

thing." But time and space are merely forms of sensuous experience. They are not active members of the external universe except to persons of imaginative temperament. There is a more serious objection to the radical mechanistic conception of evolution; it does not account for the phenomena having any meaning for our mind. There can be no apprehension of causal connexion in a succession of changes which have no relation to an end. One phenomenon simply follows another, and no inner connexion is seen between them until they are viewed in the light of the end which they serve. Then we know that the series of changes forms a solidary whole for the attainment of the end. We could have no conception of any order in nature unless we found that it is a great system of ends. The meaning of the members of a single organism would not reveal itself if they were considered severally in abstraction from the organism. And since it is universally allowed that there has been in nature an advance to higher and more complex forms, the meaning of each step in the process cannot be seen by considering them separately. A new world opens to the view when the facts arrange themselves in orderly sequence until the whole

becomes a cosmos. The cosmic character of the world is no less a reality than the steps which have led to it in the course of evolution.

It thus appears that there are stronger reasons for rejecting the radical mechanistic conception of evolution than its inconsistency with the Bergsonian doctrine of concrete time; and the conclusion at which the author arrives in his criticism of the theory of natural selection qualifies very considerably his objection to finalism, and indeed to mechanism also. He still makes a distinction between knowledge of things as made and knowledge of things in the making. By his principle of Duration it is in life generally as it is in consciousness: each moment is a creation of something absolutely new, so that while past acquisitions are incorporated with it, there is never repetition, and no possibility of foreseeing the new creations which the successive moments will bring. Therein consists the limitation of our knowledge of things in the making. But although no intelligence, even if superhuman, can foresee the various steps of a process, yet when the result is reached it is possible, he says, to trace a dependence between them such as would satisfy the demands of mechanism; and still more to perceive the

influence of the end upon the whole series of steps. How could the end attained influence the process unless it was preconceived by a guiding intelligence? Must it be in life generally, as in his first volume the author found it to be, that as "a more attentive psychology" often finds effects preceding their cause in the relations of psychic states, so in the evolutionary process a future result of development has a guiding influence on all the preceding stages? That would be once more in "life in general" getting rid of homogeneous time with a thoroughness that might satisfy the most extreme Neo-Hegelians. It would be again doing away with the distinction between past, present, and future time . . . a revelation of a timeless process, if such is conceivable, beneath our ordinary time experience.

M. Bergson is unwilling apparently to accept as real knowledge the knowledge of a process as completed, and aims at a kind of knowledge which, as shown by his attempt to formulate a conception of creative evolution, is beyond the possibility of attainment. Knowledge got by reflection on process is the only kind of which finite intelligence is capable. The causal relations revealed in it give some

power of predicting the future. Rightly regarded, mechanism and finalism are complementary of each other. The notion of "end" implies a series of means causally related to each other; and the end is the *raison d'être* of the particular sequence. Universal interaction, without any intervention of purpose, would render impossible the conception of an ordered universe. Kant was led by the beauty and sublimity displayed in the work of nature to compare it in his *Kritik of Judgment* to the work of genius, and to give forth as his final view the hypothesis of a profound principle underlying and reconciling the causal relation and the harmony of nature. The parts of an organism had meaning for him only as conditioning the existence of the organism. So Lotze, while adhering to the mechanical conception of nature as a plurality of real elements in reciprocal interaction, held that reciprocal action and interconnexion presupposes inner unity underlying mechanical sequence. And purposive action is the psychical expression of that inner unity.

The reconciliation of causality and purpose is the goal of philosophy. The author betrays some sense of that in his criticism of the Darwinian theory of evolution; but he loses sight

of it again when he proceeds to exercise his constructive imagination in divining the operation of the *élan de vie* in the creation of those "natural systems" which constitute the series of stages in the evolution of living organisms. The case by which he tests the value of purely mechanistic explanation is the identity of result attained in the development of the eye in a mollusc and in a vertebrate on widely different lines of evolution. In view of the infinite number of stages, each one involving an infinity of changes, in the course of the two evolutions, he asks how it is possible to account for the similarity of result by mechanical sequence without any intervention of a directing intelligence. But instead of following the clue which thus suggested itself, and showing how mechanism and finalism fit into each other in a reasoned conception of the process, he forgets or ignores what he had said about "natural systems" being the work of nature, and not being "artificial systems" as he holds those of common sense and science to be. So he directs attention to the contrast between the simplicity of the function and the elaborateness of the achievement "as analysed by our senses and our understanding." From this point of view the stages of development

cease to have positive reality. They are only "negations of difficulties." Any intervention of a directing intelligence is uncalled for.

Hereupon the author makes use of illustrations so ingenious, and expressed with such literary charm, that they make one reluctant to lay a rude hand on such exquisite literary workmanship. But when we are told that it is as easy for nature, *i.e.* the *élan de vie*, to create the eye of the mollusc and the eye of the vertebrate so exactly alike along such divergent lines, as it is for the author to raise his arm, we cannot help wondering why, in dealing with Darwin, Weismann, and the others, he felt the necessity of postulating a directing intelligence. Now we have an oracular utterance that the organization only figures the function, as previously it was said that perception just figures our action on the object perceived. As before "presence" became "representation," so now function, or only the need for it, becomes organization figuring the function. It must not be forgotten, however, that there is a close kinship, if not identity, between concrete time and the *élan de vie*: in the sphere of life, it was said, duration acts as a cause. And it is shown by the homely illustration of dissolving a lump of sugar in

a glass of water, that the process cannot be hastened at our pleasure. We must wait patiently or impatiently on nature's gradual process of becoming. The glass of water, the lump of sugar, and the process of dissolving it in the water, are merely abstractions due to our "geometrical habit" of thinking in space; the real process is a continuity of becoming, part of the universal interaction. So it is in the evolution of the eye from the pigment stain in the primitive organism to the marvellous instrument of vision in the vertebrate. The process which goes on slowly through thousands of years of concrete time is a gradual becoming from presence, or need, of function to representation in organic structure, as simple of accomplishment as the raising of an arm. With characteristic fertility of illustration the difference is shown between the causal series created by our senses and our understanding, and the real mode of operation of the *élan de vie*. Suppose that one thrusts a hand and forearm into a mass of metal filings. The resistance of the mass has to be overcome, and it increases the farther the hand is pushed in. When the pushing ceases, the particles of filings assume a condition of equilibrium, and figure exactly the form of the hand and arm.

Suppose now that the hand is withdrawn without disturbing that equilibrium: the mould of the hand and arm remains in the filings. What has been the cause of the result? It might be accounted for by an elaborate statement of the anatomical structure of the arm and hand. But that was not the cause. The real cause was the push of the hand and arm into the mass. So in the evolution of the eye, the long succession of forms from the pigment stain to the eye of the mollusc and that of the vertebrate, are mere abstractions like the seeming facts in the case of the *eau sucrée*, and are likewise artificially created by our senses and our geometrical understanding; but the real cause was the *élan de vie* acting like the push into the metal filings in a gradual process of becoming, which is part of the universal interaction.

M. Bergson allows no modicum of directing intelligence, although in *Matière et Mémoire* he had endowed the external reality with sensation. He sweeps away the whole subject-matter on which the industry of biologists is engaged as a mass of illusive abstractions, and yet does evolutionists the service of explaining away the difficulty presented by collateral variations as by the intervention of

a magician. Ample room is left notwithstanding for the play of natural selection. Contingency is found to have a prominent *rôle* in the evolution of living organisms. The successes are rather the exceptions in the vast multitude of what the author calls abortions in the long course of the history of life. Some of the primitive forms halted on the way, and made no farther progress. Many still exist in the same form as they had in palæozoic time. Others have turned back on themselves and afterwards disappeared. We are not told whether the failures are to be laid at the door of the *élan de vie*, or are caused by "the obstacle of matter"; or are eccentricities of our senses and our understanding in their artificial interpretation of the real process.

It is difficult to give a unilinear statement of M. Bergson's system. His cosmology changes like a chameleon. In his first volume he agrees with Kant that there is a real space, though it probably has not the same significance for the higher animals as it has for the human consciousness. But he could not agree with Kant that it is occupied by a multiplicity of material objects external to each other. Even then he had a vague idea that space must only be a "mental notion,"

as he could not see how to define it otherwise. By the time he had got to the end of *Matière et Mémoire* he had come to the conclusion that the external reality is movement, "a true absolute," related neither to a mover nor to a mobile. And so later, in *L'Évolution créatrice*, he says, "it is always provisorily, and to satisfy our imagination, that we connect movement with a mobile." There must have been somehow a mental notion of space before there were any intelligent beings, or any organisms, or any material objects at all either natural or artificial; for it was by casting the notion of space as a net over the absolute movement, that its indivisibility was broken up "artificially" into the multiplicity of material objects which are indispensable for action for the satisfaction of corporeal needs. The possession of the notion of space must have also preceded the pure perception, seeing that the perception is "in the object and not in us," and there were no material objects until the net of space was cast over the absolute movement. Notwithstanding these difficulties, "the more parts that are thus perceived in it" (*i.e.* in the indivisible reality), "the more increases necessarily the number of relations which the parts have to each other:

since the same indivisibility of the real whole continues to hover over the increasing multiplicity of the symbolical elements into which the scattering of the attention has decomposed it!"

It seems to have been at that early stage that the author was led to conceive action for the satisfaction of corporeal needs to be the destination of consciousness. The facts of practical life and the exigencies of social intercourse rendered necessary some modification of his principle of Duration as defined by him. Action for the satisfaction of corporeal and social needs is so imperative, and is so dependent for its efficacy on the causal relations in external nature, that it reacts upon the mental organization, and superinduces upon the real psychic process an artificial mode of thinking. The unity of consciousness is thereby broken up, as in the cosmogony the indivisibility of the external reality is artificially broken up. There arises a superficial personality in which the psychic states are subject to the law of the association of ideas, and which becomes the dominant personality except in rare moments of moral crisis. It may have been in view of this practically dominant empirical personality that the author declared

the destination of consciousness to be action for the satisfaction of inferior needs. And we are so far confirmed in that opinion when we find him at a later stage recognizing the validity of the principle of the heterogony of ends. In the use of intelligence for directing action upon matter, he says, "all takes place as if the principal object was to *let something pass* which matter arrests." That attitude marks the transition to the author's second mode of presenting his cosmology.

There are now said to be two mutually opposing currents in the creative evolution, one flowing towards spirituality, and the other towards materiality. The former is an ascending current, and if it were unimpeded, it would ultimately reach pure spirituality, intuitive knowledge, and perfect freedom. The latter, if not checked in its downward course, would end in pure spatiality or "zero." The opposition of the downward current arrests the upward one at mere intellectuality; and that of the ascending one prevents the other from getting any farther down than materiality. Matter is a tendency or movement in the direction of space. Intelligence is a baffled attempt to attain to intuition. Where these contending currents meet and mingle there

arises organization, and the simultaneous genesis of the intellectuality of man and the materiality of his external world. In these first two essays at a cosmology M. Bergson has devised a mythological account of the origin of mind and its environment that vies with the imaginings of the most ancient metaphysicians.

There is a third and a higher form of the cosmology which is more sublimely metaphysical, and it crowns the achievement in *L'Évolution créatrice*. The only true positive reality is spiritual. It is creative activity. The absolute movement is ignored. The opposing currents, both alike positive, disappear. The creator is an activity "of the whole of the real." What is that real in which the creative activity is seated? Is it a world of monads as in Leibnitz? Is it a world of "reals" as in Herbart? Is it the universal interaction of a plurality of real elements for which Lotze postulated a principle of unity underlying mechanism? The author only vouchsafes the oracular utterance, "the constantly renewed creation accomplished by the whole of the real in its progress, has only to withdraw itself from itself in order to relax itself, to relax in order to extend itself, to

extend itself so that the mathematical order which presides over the arrangement of the elements thus distinguished, and the inflexible necessity which connects them, may manifest the interruption of the creative act . . . they are besides identical with this interruption." It is possible, we are told, to reach in ourselves an approximation to materiality. We can, by "doing violence to our nature," let ourselves down from the continuous strain of will-activity to a state in which there is a mere multiplicity of memories juxtaposed to each other, as are the individual objects in space to our perception. We are then a stage on the way to materiality, though we can carry it no farther. But we can start afresh from the analogous juxtaposition of material objects, and see with Faraday how the being of each of these objects, and even the being of each of the atoms composing them, extends through the whole universe: and thus we get matter reduced to mere spatiality. The being of each atom must penetrate all other atoms if it extends as far as the atom's influence extends, as Faraday says it does. Hence its true being is mere spatiality. There is thus continuity between consciousness and the lowest limit of materiality.

And since at each grade of the continuity between the ideal limits of spirituality and spatiality or zero, there are present all the characteristics that are implied between it and zero, it follows that there is harmony between the intelligence of the human consciousness, in which spatiality is inherent, and the spatiality of matter. Geometry and logic are both in the path of the descending tendency before the limit of pure spatiality is reached. We are therefore born geometers and metaphysicians. No great effort is implied in mathematical or logical thinking. There is rather an abandonment of effort, a passive acceptance of what is presented. The properties of all mathematical forms are given in space. The conclusions of all syllogisms are contained in the premisses. Logic is only a degraded form of geometry: and we saw in *Matière et Mémoire* how it imprisoned us in a circle from which there was no escape in regard to the genesis of the general idea. We have now got a metaphysical deduction of the influence of space on our mode of thinking, which the author previously considered was a symbolical mode engendered by our needs. He was under constraint to give it, for he found that the qualified verification

in experience, which he admits, of the mathematical reasoning in physical science, can only be accounted for by assigning a common and simultaneous origin to the intelligence in consciousness and the "geometry" in natural phenomena.

And now in *L'Évolution créatrice* the relation between consciousness and action is reversed. At the lowest stage of animal life, we are told, there may be supposed to be consciousness latent and suppressed owing to the want of a nervous system. At each upward stage of development there is an appeal to the suppressed possibilities by the organism getting through a nervous system a greater choice of action; and consciousness "passes more freely." Action gradually becomes more "the instrument of consciousness" than consciousness the instrument of action; as is proved by there not being strict parallelism between the cerebral state and the psychological state. Finally, by the increased complexity of the cerebral organism "setting against each other" a greater number of mechanisms, consciousness is allowed to free itself from "the restraint of all of them" and become independent. So if consciousness has become the cause of action, as the author

now says, then by the philosophical canon that the nature of the latest consequent must be read into the remotest antecedent, action for the satisfaction of corporeal needs cannot have been the destination of consciousness. No doubt it is still in a sense the "instrument of action"; but as the brain becomes more complex, and the organism, in the author's theory, has choice among a vast number of possible actions, consciousness "outgrows (*déborder*) its physical concomitant." It has a destination far beyond the needs of the organism, and the nature of that destination must be read back into its remotest antecedent state: although with the author consciousness only reaches independence through the high development of a nervous system in a material organism.

No doubt this last form of the cosmology gives a better superficial appearance of unity to the system. A material world which has a negative origin in a mere interruption of activity may well be neither one thing nor another. Of a simple tendency towards spatiality it is plausible to say that there might be perfect verification of mathematical reasoning in nature, "if it were not a process in concrete time." And of a mind which is

only a tendency towards freedom, even though it reaches real freedom in moments of moral crisis, it may appear reasonable to subject the empirical self to the law of association. But after all, the interruption of the creative activity is only a negation, and the external world and the conscious experience which arise in that way can only be appearance and not reality.

It is a bold assumption of the author that a mere interruption of a positive process is the creation of another positive process of an inverse order. Hence his dictum that order and disorder are not correlated notions. He holds that willed or vital order due to the creative activity, and geometrical order identical with its interruption, exhaust reality. But what does he make of contingency? He says it plays an important part in the world process. So long as he admits it, and makes no attempt to reduce it to either of his two recognized orders, he is not entitled to assert dogmatically the sole reality of his correlated pair. There is a non-being in his system of a more objectionable type than that of the Greek philosophers. Theirs was just the potentiality of being. M. Bergson represents potentiality as proper to spiritual being; and

in his psychology memories are little, if any, more than non-beent when stored in the unconscious. Of time, he says, that if it does nothing, it is nothing. When the creative activity relaxes, and by relaxing extends, and materiality arises like the fabled phœnix, the activity does nothing, therefore is nothing: and what more than an illusive appearance can the resulting materiality be? The difference between the non-being of ancient philosophy and the non-being in the philosophy of Bergson is, that as in the *Parmenides* of Plato that notion is applied to the presence of negation in the dialectic complex of the ideas in their relation to the phenomenal world; in Bergson's system, when he moves in the concrete, non-being is largely the *terminus ad quem* of the world process. The failures of creative activity strew the course of the passage of life. The successes are rather the exceptions. There is presence of the negation or interruption of activity alike in the case of the forms that halted permanently on the way, of those that fell backwards, and of those that vanished entirely out of existence. Yet while thus the creative activity "withdrew itself from itself and relaxed," there followed no origination of ex-

tension, far less of mathematical order, among elements connected together with inflexible necessity, to manifest the interruption of the creative activity. In view of the vast preponderance of what the author calls abortions, the interruption of the creative activity is correlated with an appalling apparition of a relapse into non-being, and not with a geometrical order.

The author's abstract development of the radical becoming will not fit into the creative evolution in the concrete. The *élan de vie* encounters an obstacle in matter at the very outset of its mission "to graft upon the necessity of physical forces the greatest possible amount of indetermination," long before in concrete time it has got the length of creating intelligent beings. It needed energy to cope with the necessity of physical forces; and, creative though it was, it could not create energy. At least if it created any, "it was too slight to be appreciable by our senses and our measuring instruments, our experience and our science." All it could do was to utilize any pre-existing energy that was at its disposal. There was only one way to get what it wanted; that was to obtain the needed energy from matter in order to manufacture

"explosives" to be used in "penetrating matter." For a time the manufacture of explosives and the utilization of them went on in the same organisms. There was then "oscillation" between the tendency to vegetative life and the tendency to animal life. But evolution could not proceed far in a unilineal direction. The energy found on the planet was inadequate, and it became necessary to get supplies from another source. The "original tendency" was compelled to analyse itself into the tendency towards vegetative life on the one hand, to get the benefit of solar radiation for laying up stores of potential energy; and, on the other hand, into the tendency towards animal life, to use the energy for penetrating the physical necessity of matter. As the stores of energy were located in plants here and there on the surface of the planet, the animals needed the power of movement to go in quest of it. Movement entailed the possession of a nervous system and consciousness. Increasing complexity of the nervous system in animal life went on slowly in concrete time, and resulted in "zones of indetermination"; these again implied and led to the power of perception, which figured itself in the organs of the different senses.

There are several discrepancies in this creative evolution in the concrete to which attention must be called. In the first place, the author falls back on his early conception of the independent existence of matter. Our planet to which the *élan* came on its mission from the Supraconsciousness, and the sun to which it had recourse in its difficulty, are both material objects, and must have been in existence anterior to the operation of the *élan*. Whereas we have been told that materiality is only an interruption of the creative activity and coeval with intellectuality : from another point of view, that a material object when not in consciousness is only an unconscious mental state. We are also told that consciousness is only found where there is power of movement. Therefore at the early stage when life was oscillating between plant and animal, and still earlier when the *élan* in its difficulty had to devise a means of tapping the sun's energy, there was no being on the planet with the power of movement, therefore no consciousness, therefore no intellectuality, and consequently no material object in existence. The author is unfortunate in having to call in the creative evolution's own offspring to take part in their own procreation.

Another point to be noted is that in the explanation of the complementary relation between vegetative and animal life, there is a relapse to radical finalism and radical mechanism. The utilization of explosives for grafting indetermination on the necessity of physical forces is represented as the end aimed at, and directing the separation into the two great lines of plant and animal life; and the author seems to have hesitated to make presence of function be figured in the dissociation of the two great kingdoms of nature in the deft way he solved the problem that has been a stumbling-block to Darwinism. There is also an equivalent to radical mechanism in the explanation of the harmony between the two kingdoms. All the main characteristics of both are said to have been fused together in the original tendency, and the properties of the one line often reappear in the other in special circumstances. There has been no co-operation, no convergence of the two lines, but only dissociation of what was originally united. The author would find a similar idea expressed in Prof. Sedgwick's conception of the evolution of living beings; that at the first appearance of life, the life cycle was either actually or "*in posse*" as long as it is at

present. In the author's view, as in Prof. Sedgwick's, there is as plain assumption of all as given essentially at the first as there is in radical mechanism.

Further, the author now finds that he has got another way of solving the difficulty of collateral variations. First he said there must be a directing intelligence if the different stages of the evolutions are taken to be realities. For that he soon substituted the efficiency of the *élan de vie*, and got rid of the long series of the variations as abstractions created by our senses and our understanding. Now he says that the identity of structure in the eye of the mollusc and in that of the vertebrate is an instance of the law that "when a tendency dissociates in developing, each of the particular tendencies thus arising conserves and develops all of the primitive tendency that is not incompatible with its specialized function." Seeing that the function is the same in the two cases cited, the organic structure which figures it is identical, notwithstanding the wide difference in the lines of evolution. In steering clear of the Scylla of Finalism, he becomes a prey to the Charybdis of Mechanism. "The harmony," he says, "is not *en avant*, but *en arrière*. The unity

comes from a *vis a tergo*: it is given at the beginning as an impulse; it is not posited at the end as an attraction." The principle of dissociation is now organic in his system. Creative evolution becomes division of tendencies originally fused together; and the severance of the unilineal tendency into the lines of the two great kingdoms of nature is stated distinctly to be due to the obstruction of matter.

When we come to the statement of the relation between instinct and intelligence, we are again taken aback by a departure from the earlier view as given in *Matière et Mémoire*. There is no need to repeat what was offered there as the true account of the genesis of the general idea. When we remember how emphatically in *Les Données* the doctrine of *a priori* categories was rejected, it is not a little surprising to find at last the assumption of "innate forms" as essential elements of both instinct and intelligence. Instinct is equipped with certain "innate forms" for the automatic apprehension of particular objects: intelligence with other "innate forms" for the apprehension of relations. And these psychic characteristics were fused together in the original tendency before the separation into the divergent psychic

lines in the animal kingdom. The categories are now swallowed at a gulp, fused together in a bolus as "the innate tendency to establish relations"; a tendency which implies "the natural knowledge of certain very general relations, veritable stuff which the activity proper to each intelligence will shape into more particular relations." And in addition to slumping in that way all the categories of the understanding, instinct must needs be endowed with "the innate knowledge of things." Nature took the remarkable step of stripping humanity almost bare of that innate knowledge of things which had been found most serviceable to all the animal world hitherto, and which continues to be so to all but man. As a being fallen to mere intelligence from instinct, which had been acting efficiently by the use of "organized instruments," man has to follow his natural bent to establish relations by becoming a "fabricator of unorganized instruments." A knowledge of things seems to be a superfluous endowment of instinct, when its needs have been said to be satisfied by the qualities of things, which are appropriate to the animal's organism, acting upon it as attractive forces. How could it have knowledge of things otherwise than through knowledge of their qualities?

And how could it know the qualities without discriminating them, that is to say, without establishing relations? We are told, however, in *Matière et Mémoire* that "the colour and odour of the grass, felt and undergone as forces, are the sole immediate data of the herbivore's external perception."

There is yet a third explanation of instinct. The assimilation of it to a degraded intelligence, and its reduction to a pure mechanism, are both declared to be wrong. Instinct is now sympathy: and "if this sympathy could extend its object and so reflect upon itself, it would give us the key to vital operations in the same way as intelligence, developed and corrected, introduces us into matter. . . . Intelligence, by the intermediary of science which is its work, tells more and more completely the secret of physical operations: of life it gives, and pretends only to give, an expression in terms of inertia. . . . We should be led into the very interior of life by *intuition*, that is by instinct become disinterested, conscious of itself, capable of reflecting on its object and enlarging it indefinitely." If instinct were thus transformed, there would be no difference between it and intelligence. Intuition should be superior to the need for reflection.

What has become of the psychological bridge which was constructed with so much ingenuity in *Matière et Mémoire* to connect the two spheres of mind and matter? No bridge is needed when it is proved metaphysically that there is continuity between them. By relaxing the tension of the will and sinking to a mere multiplicity of memories, mind can let itself down so as to fit into a definition which is given of spatiality as "mutual externality of parts." By the complete interpermeation of psychic states to which the author's intuition penetrates, mind fits as well into his other conception of spatiality as the complete interpermeation of all the atoms in the universe. Interpermeation is thus the true universal; what Hegel would have called the notion which is the true reality of things. It may not exist, any more than the notion of animality exists apart from the particular animals. But like animality in the animal, so interpermeation is the true nature of both mind and matter, of subject and object, of thought and being, in the completed form of M. Bergson's philosophy. He has laboured needlessly to make contact between the two spheres. They are now to his thought not merely contiguous: they are one, identical in

essence, and are merely two aspects of the same reality as presented to our senses and our understanding. But M. Bergson's system is not self-developing as a system should be. He has found the notion of the concrete in matter as well as in mind to be interpermeation, and with the help of a demiurgus in concrete time, he ought to have shown that the notion, besides being a principle of unity, is capable of being an independent source of development. He has acted otherwise: with such a barren principle he was bound to act otherwise. We have tried to follow him in his devious course from *Les Données* to the end of *L'Évolution créatrice*; and while charmed by his art, and interested in the variations of his theme and his skill in execution, we cannot but think the artist has erred in having too many strings to his lute.

It does not come within the scope of the writer's purpose to deal with M. Bergson's brilliant work in comparing the methods of ancient and modern philosophy. Attention is here given strictly to the Bergsonian system. But it may be remarked that while the negative criticism of certain modern systems is as just as it is brilliant, he has attributed to the artistic temperament of the Greeks more

influence than it had on philosophic method. It may have been a kindred intuitive genius which in Socrates penetrated to the universal of knowledge, and in the artists realized the *urphänomen* in their great creations, as seen in the frieze of the Parthenon. But it was the universal of Socrates, and not the *urphänomen* or representative moment of art out of which grew the philosophic method of the great thinkers. M. Bergson seems to have read into the Greek mind a good deal of what has been suggested to him by more recent predecessors. His trend of thought throughout is reminiscent of Weimar. His longing for intuitive knowledge bespeaks an artistic temperament. But it will not be by straining after intuitive knowledge that secure progress will be made in the development of the philosophic idea. It was said at the outset of this chapter that the goal of philosophy is the reconciliation of causality and purpose. It may be that it can only be reached by some subsumption of finite personality in a higher principle. It is the problem of philosophy to reason it out. Hegel says in the *Encyclopædia* that philosophy owes its development to the empirical sciences, and there is no higher authority than he on the history of philosophy.

Lotze was of opinion that "only such inquiries as are carried on in the spirit of realism are able to bring us to the goal which idealism has set before itself." And now that the atom has been reduced to the electron, that the electron has been said by a high authority to be "only a peculiarity or singularity of some kind in the ether," and that the force aspect of the ether "is so singularly elusive that it is a question whether we ought to think of it as matter at all," we may be nearing discoveries in empirical science that will herald another great advance in philosophic thought. There may be a subsumption of the force inherent in the ether and the will power of consciousness in some higher form which as yet we can only conceive through the category of self-consciousness. It is certain that progress will only be achieved by the patient exercise of our senses and our understanding in the way that past successes have been gained in the domains of nature and of mind.

CHAPTER IV

THE PERCEPTION OF CHANGE

THE latest expression of Prof. Bergson's views up to the present was given in the lectures which he has recently delivered in England. It cannot have escaped the notice of his thoughtful auditors, and especially of those who have made some study of his writings, that there are some fresh statements in the lectures likely to make them pause in accepting the teaching he has offered them. In lecturing at Oxford University on the perception of change he said, "If our senses and our consciousness had an unlimited range, if our faculty of perception, external and internal, were indefinite, we should never have recourse to the faculty of conception or that of reasoning." But he holds that "consciousness is memory," and since any exercise of memory implies a mental activity identical

with that by which concepts are formed, it is difficult to conceive how we could have a consciousness of any range without having recourse to conception. In *L'Évolution créatrice* he said that intellect has an innate faculty of apprehending relations as distinguished from instinct which has an innate faculty of apprehending objects; indefinite perception, then, would just be indefinite instinct, that is, indefinite power of apprehending objects. It would leave us without the power of apprehending relations; the best part of the universe of knowledge would be for us non-existent, and our life would be only a higher grade of that of the inferior animals. In saying that conception is of value only by the virtual perceptions which it represents, Bergson virtually declares worthless all the higher content of knowledge; whereas Kant's ideal of an intuitive understanding meant immediate apprehension of relations as perception is immediate apprehension of objects. The truth of the statement that a negative instance will destroy a conception or a reasoning, is wrongly taken to prove that the worth of either is due solely to the eventual perceptions they represent. Only wrong conceptions or reasonings can be de-

stroyed by, for only they admit of, negative instances. Right ones have a value in their own right as constituting an intelligible experience. Unless consciousness, if it got unlimited range, ceased to be consciousness and became something else, it would still embrace conception and reasoning. There are probably few naturalists who would confidently affirm the complete absence of these two features from even the lowest forms of conscious life: the want of them in a form of unlimited range is nothing short of a monstrous conception. It might be that in a static universe a completeness of knowledge could be reached, such that there would be no further need for the exercise of conception and reasoning for the acquisition of new knowledge. But Bergson's universe is dynamical; new conditions are continually being created; these will involve new relations, and consequently the continued exercise of the faculties of conception and reasoning to apprehend them.

There is a striking inconsistency between Bergson's belief in the value unlimited perception would have *per se* and his final opinion that the sole reality, internal and external, is movement or change. Movement "without

either motor or mobile" is a conception which is not, and cannot be, an object of perception. An illustration which he uses freely in his lectures illustrates this. If two railway trains are running side by side in the same direction and at precisely the same speed, and if no sense impressions other than visual give indications of change, the passengers in both trains would infer from their visual experience that the trains were standing still. Yet the trains are as really in rapid motion as if the passengers saw trees and houses appearing and vanishing in rapid succession. The actual movement of the two trains is in itself imperceptible to them. Movement *per se* is an abstraction: it is not, and cannot be, an object of perception. Bergson repudiates abstract thinking, yet few writers hypostasize abstractions more. Movement, his fundamental reality, is a pure abstraction which can have no meaning apart from a mobile, and perhaps a motor also. He hypostasizes perception as an ideal preferable to concrete cognitive powers, in abstraction from which it is a word without meaning. He postulates a constituent of perception itself which he calls the "pure perception," takes it in abstraction from the concrete whole, and hypostasizes it as the

basis of all our perceptive knowledge, even while acknowledging that it is "by right" rather than "in fact." Not only does he exalt abstractions to independent realities when he finds them ready to his hand in ordinary parlance, as in the case of movement: he boldly creates them when it suits his purpose, as in the "pure perception." What is the "unconscious" which plays such an important part in his theory of memory? It could not be an object even of unlimited perception, seeing that it is a mere negation of consciousness. And what is life itself, the theme of all his philosophizing, but a conception that could never be an object of perception, and which is got by reasoned reflection on the perceived facts of experience? The Bergsonian philosophy would be an emaciated system if it were stripped of all that it owes to its author's brilliant faculties of conception and reasoning.

Consider, too, the limitation of experience which would be caused by restriction to perceptive power. There could only be knowledge of a present situation. Unaided by conception, the present could not "be lighted up" by memories of the past; for in any such use of memory a mental activity is involved which is identical in at least one feature with

the act of forming conceptions. There must in the one case be comparison of "memory-images" with a present situation (as is set forth with much elaboration in *Matière et Mémoire*) just as in forming a conception there is comparison of instances. Even with complete perceptive knowledge of all possible experience within the terms of our unit of duration, there could be no continuity of consciousness. What, then, would become of the Bergsonian principle of Duration with its ever-increasing enrichment of the present by the past? How could one momentary flash of omniscience be in need of, or possibly get, enrichment from a previous omniscient flash? A purely perceptive experience is a contradiction in terms.

M. Bergson must have astonished his Oxford auditors when he told them that philosophy owes its existence to the narrow range or the weakness of our perceptive powers. It would be nearer the truth to say that it is owing to our being more than percipient beings. A merely percipient being would not be troubled with that eager questioning which has spurred on men of reflective temperament to philosophic speculation. Perception can only inform in various degrees

about the What of things. But thoughtful minds cannot be content with that. They are impelled by their nature to inquire about the Why, the Whence, and the Whither. "Man looks before and after." It was not a feeling of the insufficiency or weakness of perceptive power that induced the authorities of Oxford to invite the distinguished metaphysician to lecture to them, and kept his cultured audience spellbound listening to his exposition of his views. Rather was it a consciousness of powers and needs which perceptive experience could neither measure nor meet. And if it was so on that interesting occasion, so also it was when philosophy came to the birth. Our universe is more than a multiplicity of facts to be perceived: it is a riddle to be solved: and the attempts of the early Greek thinkers, near as they kept to the sphere of sense-knowledge as became the initial efforts of thought, were a proof that they were conscious of a task and of powers to cope with it. Philosophy sprang from powers higher than perceptive, and from needs which no mere perceptive powers could satisfy.

When M. Bergson indicated how to work towards realizing higher perceptive powers, he seems to have repeated with an important

modification the time-honoured recommendation to give careful attention to facts. He stated it to be the proper work of philosophy to give "a more complete perception of reality by turning attention away from facts that are of practical interest and directing it to facts that are of no practical utility." One may, without being a pragmatist, prefer that philosophy should not ignore facts of practical interest. Art, says M. Bergson, has gained its triumphs by the attention of men of genius being "diverted" from practical life. Did Homer ignore the facts of Greek life, or Shakespeare those of English life, or Goethe those of the German life of his time, or was Molière's attention turned away from the everyday life and social foibles of his generation? And in another sphere of Art, from what other source than the tenderest scenes of home life did Raphael get the inspiration which made his Madonnas the abiding charm and admiration of the world? What Bergson aims at, however, is something else than an extension of the power of perception to render us independent of conception and reasoning. Presumably by that "doing violence to our nature" in a vigorous effort of introspection which he recommends others to practise, he

claims to have learnt by intuition that the world of our ordinary consciousness is not the real world: that it is an artificial world constructed by our senses and our understanding, necessary indeed for the satisfaction of our needs and the exercise of our motor activities. He would have effort made to withdraw attention from that unreal world in order to apprehend "change and duration in their original mobility"; by that means to "extend and revivify our faculty of perception." An effort is necessary, he says, to break away from certain habits of thinking and perceiving that have become natural to us; and so to get back to direct immediate perception of change and mobility. The first result of this effort is said to be a perception that *all change, all movement are absolutely indivisible.*

It needs no particular effort to become aware that they are indivisible. Neither is a thing. Both are processes attaching to things: and to suppose that a process is divisible would be as absurd as to suppose that an abstract notion is divisible. However, the naïve proof which is given of their indivisibility for behoof of those whose perception is still too incomplete, would prove as well that a straight line is indivisible. No one will raise any difficulty

about assenting to the statement that movement and change are indivisible. The difficulty will be to accept the teaching that movement or change is the sole reality. For we seem in our ordinary experience to be meeting continually with immobilities and with states which endure for longer or shorter periods without undergoing any change. Our practical experience, it is allowed, makes immobilities a necessity, for without them we cannot conceive how we could act upon things or how things could act upon us. Bergson gets rid of the difficulty by assuming that the indivisible process of change in conscious life and the other indivisible process of change in what we call the material world, are on parallel lines in the same direction, and have been so regulated to fit into each other that, like the passengers in the two trains before referred to, we in our ordinary consciousness see only immobilities or a succession of states where there is absolute movement. This view is entirely different from the one in *Time and Free Will*, where it was not a pre-established harmony between two indivisible movements that produced our ordinary consciousness of a succession of immobile states. Then it was held that an artificial mode of thinking was

produced by our daily converse in practical life with a real multiplicity of objects in a real space. Another difficulty in the way of accepting this pre-established harmony is that it leaves no room for the freedom of action which is insisted upon in *Time and Free Will.* How could there be any choice in the one indivisible movement if it is regulated to fit exactly into another indivisible movement which is governed by a rigid necessity? The view given in the Oxford lecture is not less at variance with the teaching in *L'Évolution créatrice*, that there are two opposing currents in reality, one towards spirituality and freedom, and the other towards materiality and necessity —an idea which was doubtless suggested by the evolution from less to greater complexity in organisms, and from greater to less complexity in the inorganic. To be consistent with the passage in *L'Évolution créatrice* the simile of the two trains would have to be altered and the trains be made to rush past each other in opposite directions—a state of things which would not suggest the notion of immobility.

The only other point in the Oxford lectures that calls for special remark is a third account that is given of how past experience is conserved in the present. It is now said to be

owing to conscious life being an indivisible continuity of change. "An attention to life, which would be powerful enough and exempt enough from all practical interest, would embrace in an undivided present the whole past history of the conscious person, not as a simultaneity, but as at once continually present and continually moving." Indivisibility of change is here the principle of explanation. In *Time and Free Will* it was the interpermeation of states. But states being put out of court as an artificial construction, their interpermeation yields place to the indivisibleness of the whole. We cannot have any part without having all. In *Matière et Mémoire* the past is registered in what is called the motor memory, the system of cerebral mechanisms into which every perception is prolonged. And there is another register, in the Unconscious, of the "spontaneous" or representative aspect of memory, and an elaborate account is given of the way the motor memory mediates the connexion between the memory-image in the unconscious and the situation present in perception, *i.e.* between the past and the present. All that elaborate explanation of the operation of memory is now in the lectures superseded, and memory is said to be in no

need of explanation. Because conscious life is an indivisibility of change, "what needs to be explained is not the conservation of the past, but its apparent abolition." What is called the past, then, could not pass into oblivion. States, psychic or other, are unreal, artificial creations, and there cannot be interpermeation if there are no real states. Neither can there be the "organic unity of states" which in *Time and Free Will* was said to be the real personality and the true ground of freedom. Conscious life is an indivisible whole, an aspect of the "radical becoming," which, "to an attention powerful enough and exempt enough from practical interests" is "an undivided present, at once continually present and continually moving." No more need for memory-images to take refuge in "the unconscious." "We have no more to account for memory, but for forgetfulness": and the explanation of that is found in the structure of the brain. But can the cerebral mechanisms be any less an artificial construction than the *eau sucrée* in *L'Évolution créatrice*, which took aback even such an admirer as the lamented William James, or than the long train of collateral intermediaries in the evolution of the eye in the mollusc and in the vertebrate,

which was said to be the illusive invention of "our senses and our understanding"? "Nature," said M. Bergson, "has invented a mechanism for 'canalizing' our attention towards the future and diverting it from the past—I mean from that part of our history which does not concern present action." In this later statement a blue pencil is drawn across all that was written in *Matière et Mémoire* regarding the spontaneous memory and the manner in which its stores are used to "light up" a present situation. All past experience is now "present and moving continually" in the indivisible whole of change; and all that is required to lay it under contribution is an effort of attention, the range of which is limited only by the practical interests we allow to interfere with it. The distinction between past and present, in the author's treatment, has become an arbitrary one regulated by practical interests. The reader may be reminded in this connexion that in *Time and Free Will* Bergson made free with the relation between present and future in a similar way, by announcing that "a more attentive psychology sometimes reveals to us effects which precede their causes." It would thus appear that the

distinction between past, present (and future?) is made by the wider or narrower range of attention to what is all "continually present and moving." This new philosophy "habituates us never to isolate the present from the past which it brings along with it," and "reveals something like a fourth dimension," by "permitting anterior perceptions to remain solidary with actual perceptions and with the immediate future." Why only with the *immediate* future, seeing that the entire movement of experience is an indivisible whole, that effects may precede their causes, and that the distinction between past, present, and at least the immediate future is allowed by the author to be made by ourselves in dilating or narrowing the range of our attention? This has all the appearance of succession in time being now regarded, like states in time and multiplicity of objects in space, as mere appearance, another artificial construction determined by our practical needs and activities. As in the Darwinian origin of species, so in the philosophy of M. Bergson, it almost seems as if all things down to our most fundamental convictions owe their existence to survival of the fittest for the practical needs of life. Reality is a "radical

becoming." In one phase of his philosophy it is in two movements in opposite directions, the meeting and mingling of which gives rise to organization into the varied universe of ordinary consciousness. In this latest phase the movements are side by side in the same direction, and fitting so exactly that each can act upon the other. Consciousness, dazzled into non-perception of the movements, sees in the indivisible wholes on either side only immobilities and states, so that no natural selection for the survival of immobilities adapted to needs is called for. Our ordinary consciousness of an inner world of manifold states is in *Time and Free Will* an artificial creation by beings existing in a real space and in converse with a real multiplicity of external objects. In *Matière et Mémoire* movement is the sole reality in the so-called material universe, the world of objects with their mathematical order and inflexible necessity being got by the notion of space being thrown over the movement, also for the satisfaction of the practical needs of life. In *L'Évolution créatrice* the organization of the two worlds of mind and matter is brought about by the meeting and mingling of the two opposing currents as stated above. And there is a

third version of the cosmogony in which the sole reality is an activity of "the whole of the real" (whatever that may mean), the mere interruption or negation of which not only causes, but *is*, the material world of mathematical necessity. And now, in contradiction to these earlier views, as well as to the teaching of science since the discovery of radium and its products, the two movements in consciousness and in matter, or in the organic and the inorganic, are said to be in the same direction, and have been so regulated that they form a pre-established harmony, and therefore can act upon each other. "It is a certain regulation of mobility on mobility which produces the effect of immobility." Yet hitherto the Bergsonian doctrine has been, and in some incomprehensible way still is, that while consciousness and matter have had a common origin, the destiny of consciousness is "to penetrate or traverse the necessity of matter" and bend it to its purpose, without having any purpose of doing so. The course of its endeavour is said to be strewn with abortions, and it has only achieved a qualified and still problematical success in the case of man.

CHAPTER V

LIFE AND CONSCIOUSNESS

In the "Huxley Lecture" at Birmingham University, which was published in the decennial number of the *Hibbert Journal*, Bergson said, "Let it suffice that I see in the whole evolution of life on our planet an effort of this essentially creative force to arrive, by traversing matter, at something which is only realized in man, and which, moreover, even in man, is realized only imperfectly." In that statement and in others that follow it there is some indication of a promising advance in opinion. The authority of the majority of palæontologists might have been quoted in support of the view now expressed, that the necessity of adaptation explains the arrests of life at determinate forms, much more than the movements by which life acquires more complex and efficient forms. The simplest

organism is rightly said to be as well adapted to its environment as man is to his, "since it succeeds in living in it." Why, then, it is asked, should there have been more and more delicate and *dangerous* complication of organisms if adaptation explains everything? "There must be behind life an impulse, an immense impulse to climb higher and higher, to run greater and greater risks in order to arrive at greater and greater efficiency. . . . It seems as if the force I speak of contained in itself, at least potentially and interfused, the two forms of consciousness that we call instinct and intelligence." Why hesitate over that marplot of clear thinking, potentiality? Things that are interfused have got past the mystical stage of potentiality, and taken some steps into actuality.

So there is repeated what was said before about the great wave of consciousness traversing matter and making it an instrument of liberty, so far as it is possible to do so while being "dogged by automatism." Success attends automatism, and liberty of consciousness is stifled, in all cases except that of the human species. In man alone, *owing to the complexity of his brain*, consciousness frees itself by *setting necessity to fight against necessity.* Bergson

speaks indeed of a sudden leap from animal to man, which breaks the chain of necessity. But in the immediate context he contradicts that by asserting that it is the slowly attained complexity of the human brain which gives freedom. The choice which the cerebral apparatus affords between different lines of action enables consciousness to set necessity to fight against necessity. Then at once he bounds over to the vital impulse towards higher and higher efficiency, "ever seeking to transcend itself, to extract from itself more than there is, in a word to create." And he concludes that this impulse must be a *spiritual* force, because it gives more than it has. Yet he has just said that the freedom attained has not been got by the creation of anything new. The cerebral apparatus was explained in *Matière et Mémoire* as an automatic system produced by natural causation. Now consciousness wiles freedom from matter on the principle of *dividere et imperare*, and we saw in the same work how mechanically Bergson conceives choice to be determined, if indeed choice is the right word to use with such presuppositions. There has been no sudden leap. The nervous system has passed through a long development in the animal series culminating

in the human brain. This brain has the "remarkable feature" that "habits mechanically contracted" and "different kinds of automatism" can be opposed to each other, and by the opportunity thus mechanically afforded consciousness manages to slip through to freedom. Whereas in *Time and Free Will* freedom is affirmed to be an indubitable datum of consciousness, and an expression of the organic unity of psychic states which is the true personality.

It is with no slight gratification that we hail the reappearance of the "indubitable datum" in the concluding paragraphs of the article in the *Hibbert Journal*, even though it shows some marks of its long eclipse in the volumes. Spiritual activity comes to the front and automatism falls behind, or sinks to an instrument in its hand. The obstacle of matter is represented as having for its *raison d'être* the need to stimulate the spiritual force to activity, though still the activity is limited to taking advantage of contending or competing habits and automatisms set up in the brain. Instead of the whole mentality being based on and built up with perceptive raw material, "the virtual activities of external reality," mechanically selected by the organism

and doubly ensured by being stored in motor mechanisms and lodged in the unconscious in the form of representative images, we now have the continuous presence and movement, not always wholly attended to, of the indivisible stream of change which is conscious life, the product or manifestation of a spiritual force which "draws from itself more than it contains, and gives more than it has." In eloquent language, which we quote as more likely to appeal to the English mind than anything else which M. Bergson has written, he says, "Are we not led to suppose that in this passage of consciousness through matter, consciousness is tempered like steel, and tests itself by clearly constituting personalities and preparing them, by the very effort which each of them is called upon to make, for a higher form of existence? If we admit that everywhere else consciousness has remained imprisoned, that every other species corresponds to the arrest of something which in man succeeded in overcoming resistance and in expanding almost freely, thus displaying itself in true personalities capable of remembering all and willing all and controlling their past and their future, we shall have no repugnance in admitting that in man, though perhaps in

man alone, consciousness pursues its path beyond this earthly life."

That passage, welcome as it is, cannot be the final utterance of M. Bergson's philosophy. It is not in harmony with much that he has written in his published works. He cannot fail to see on further reflection that the views he had set forth in them call for revision. He has now recognized a spiritual force operative in what he has called the *élan de vie*. The Supraconsciousness which he had postulated as the sole conceivable origin of the evolution, was relegated to oblivion in all the three volumes containing his system; and a persistent effort was made by a succession of bold hypotheses to prove that Time, Concrete Time or Duration as he calls it, is the true creator of both the inner reality of consciousness and the external reality of its environment. Only reflection is needed to reveal the necessity of identifying the Supraconsciousness with the Absolute of Idealism; to force a conviction that human personality is better conceived as, in Hegel's words, a reflection of divine personality, than as a fortuitous concourse of states; and to show that "regulation" of what he calls "mobility on mobility" resulting in an intelligible universe

with which man at least holds intelligent converse, is inconceivable apart from governance by a Supreme Intelligence.

Unfortunately, in the four lectures on "The Nature of the Soul" at University College, London, there was no important advance on what is contained in the three volumes we have considered, and in the previous lectures at Oxford and Birmingham Universities. Among the few novelties there was a problematical gift to matter of an infinitesimal faculty of memory. In the closing remarks of the last lecture it was said that if matter possessed memory, it is so short that it can only connect one moment with another. It was further said that this distinction between matter and mind in respect of time (or rather unit of duration) and memory, affords an explanation of how they come to be united, and gives the *raison d'être* of their union. It will be remembered that in *Matière et Mémoire* the meeting-point of mind and matter was said to be the pure perception seated in the object and not in us, in which by a kind of osmosis sensation passes from mind to matter and extension from matter to mind. That was a crude device for making contact between them. It is done more ingeniously in the

lecture. What, it is asked, means the enormous difference between the rhythm of our duration and that of matter? Our momentary sensation of light is caused by hundreds of billions of etherial vibrations. Reasoning by analogy from the fact that when we seize a number of events in a single vision, as the man of action does, we are more able to direct them, Bergson infers that the mind's power of acting on matter and "making it an instrument of freedom," is owing to the difference of tension between the rhythm of duration of our consciousness and that of matter. If that were granted, however, he has still to account for the action of matter on mind.

If it is higher tension of duration in consciousness, such that an instantaneous sensation of light represents hundreds of billions of vibrations in the ether, that explains mind's power to act on matter, how is it that matter, having such an immensely lower tension of duration, can act on mind? For it must be remembered that there is reciprocal action; it was stated that the two indivisible movements or changes are so regulated as to fit into each other and thereby act on each other. And there are said to be infinitesimal elements in consciousness also. In *Matière et Mémoire*

we were told that in the simplest act of concrete perception there is an infinity of pure perceptions, and a relation of rigid causality between any two of these infinitesimals. Bergson thus leaves two difficulties unsolved regarding the reciprocal activities of mind and matter . . . how it is that greater tension of duration enables mind to act on matter, while inconceivably less tension of duration of matter does not disable it for acting on mind; and secondly, how a pre-established harmony between the two movements, as had been affirmed, can admit of choice of action by the one upon the other. The two movements might be understood to work as smoothly as two cogged wheels, if the causally connected infinitesimals of the one fitted into the similarly causally connected infinitesimals of the other, as seems to be the idea in the previous lecture. Then rigid causality would reign in both movements. But how the "seizure into a single vision" of a multiplicity of cogs in one wheel would give it a choice among various ways of fitting into the other, seems to be an arrangement hard to comprehend. Stuart Mill said that we act on matter by setting its laws in operation. And Bergson said in *Matière et Mémoire* that the greater the

tension of memory, the greater is the power over matter. And that is true, for a well-stored memory just means a wide knowledge of the laws that have to be complied with.

Another difficulty confronts us. At an earlier period of his philosophizing Bergson said that only consciousness has duration; that matter is only a momentary section made by perception in the radical becoming; and that when not in consciousness, it can only be conceived as an unconscious mental state. Then, again, matter and the strict mathematical order and rigid necessity characterizing it were said to be only the interruption or negation of the activity of the whole of the real. Now, the external reality is an indivisible whole of movement which endures parallel with the indivisible whole of consciousness, and may have memory enough to throw a bridge from one moment to the next. Why is the matter-memory so limited when in consciousness all the past is continually present and continually moving? Is it because consciousness is an indivisible whole that it has such an all-embracing memory? But matter is said to be an indivisible whole of movement also, and on that ground has an equal right to claim from M. Bergson an all-embracing memory.

Matter and consciousness, in Bergson's belief, have had a common origin. A conclusion which he reached years ago was that between the vibrations of which science tells, and the sensation in consciousness, there is only a difference in degree and not in kind, and due simply to difference in the rhythm of duration. Thus he found that in the sense of hearing the sounds heard may slow down to distinct vibrations. And, on the other hand, the pure perceptions which in this system are the sole raw material of mentality, were said to be the virtual actions of objects mysteriously selected by the human organism. If these earlier views are still retained, the relation of mind to matter should be that expressed by Prof. Robert Adamson, that "in the process of change a certain configuration of the external has the character of inner reference which constitutes the fundamental feature of psychical existence." But it is not open to Bergson to adopt Adamson's caution "to let it be borne in mind that the mechanism of nature is not known to us as a completed whole"; for in Bergson's works there is, as has been shown, persistent effort to make the whole movement of conscious life dependent on mechanical sequences in the organism.

It does not appear to be conceivable how in the Bergsonian philosophy the action of mind on matter can be explained, and freedom obtained, by a difference in the rhythm of duration in the two movements. There must be something else to account for interaction between two movements of which one is under rigid necessity, and in the other there is power of choice. Or if it were higher tension of duration that enables mind to act on matter, by parity of reasoning it must be some power with a higher tension of duration than the human consciousness, that acts on the human mind. Bergson had the right solution lying ready to his hand in his supposition that a Supraconsciousness is the original source of both indivisible movements; but he made the mistake of relegating the Supraconsciousness to oblivion as soon as it had sent the *élan de vie* on its mission of creation. He had, as all genuine philosophy since Descartes has had, the fact of consciousness as a foundation to build upon, and the right principle to adhere to would have been spiritual activity as the creator of both conscious life and its environment. But that method would have landed him dangerously close to Absolute Idealism, and it was his

purpose to show how the human soul "can create itself." So when he bade farewell to the original Supraconsciousness, he thought he had found in Concrete Time or Duration a capable creator. Now at the end of his philosophizing he discovers that a force which "draws from itself more than it contains, which gives more than it has, is precisely what is called a *spiritual* force." Precisely. Then why not allow it to be this spiritual force that operates from the first and all along the various lines of evolution? He had barely hinted at it in the footnote near the end of *Time and Free Will*, to which reference has been made in our first chapter. But so far from seeing the necessity of the presence of spiritual force all along the course of evolution, the one great aim of his philosophy is to show how this spiritual force itself is created, and his final doctrine in the lectures is that the human soul creates itself. There is a close analogy between his conception of the evolution of the material world and the evolution of individual souls, as it is given in the only available source of information—the *Times* report of the last lecture. "Shall we suppose," he said, "with Plotinus that they reside in the suprasensible world, and that they have fallen

into bodies? It is unnecessary to have recourse to allegories of this nature. It is enough to observe, as was done in the first lecture, that the concepts of multiplicity and of unity apply strictly to matter, for which they were made: and that, in the world of mind, they are often inapplicable. This is true of the inner life of each one of us, which is neither one nor manifold [because it is both]. If, then, we take all human souls, real and possible [distinction of the time past, present, and future again ignored], we find that they are far from being as distinct from each other as we believe. We must, then, figure to ourselves, in the beginning, a general interpenetration of souls; and this interpenetration is the very principle of life. This principle produces life, and all the evolution of life, by its entrance into matter [in *L'Évolution créatrice* intelligence and matter originated simultaneously]. . . . We see that this principle must have left many things on the way. Certain lines of evolution seem to have failed. But on the line of evolution which leads to man, liberation has been accomplished, and thus personalities have been able to constitute themselves." So, in analogy with the material world, soul life was at first an undifferentiated

nebular mass, which had the mysterious power of differentiating itself into personalities having likewise the power of constituting themselves. Such is the last word, thus far, of the Bergsonian philosophy. We prefer to believe, in better harmony we hope with reason and common sense, that the material world and the world of conscious life are both realities as manifestations of a Supreme spiritual activity; and that the problem of their interaction is a long, long way from having been solved.

The questionable assumptions and inconsistencies in Prof. Bergson's system of philosophy are held in solution in a style of remarkable clearness and charm, which has probably kept their objectionable character concealed even from the author himself. It needs only a few drops of common sense to be put into the solution to precipitate them and make them visible in their real nature to a less gifted observer. There is little likelihood that this new philosophy of intuition will accomplish what all philosophic systems hitherto have failed to do, by solving the enigmas of experience either by satisfying or silencing the ever-recurring questionings of the human mind. But there is no cause yet

to lose hope of some good results from the exercise of "our senses and our understanding," in default of that higher perceptive power on which M. Bergson would rest the world's hope. He has assumed the mantle of the prophet to denounce the errors of mechanism; and meanwhile in the hands of biologists and physicists, and by the old methods of research, mechanism is gradually moving on, seemingly, towards its own refutation. It may be as profitable as it is interesting to supplement the preceding chapters by a brief account of recent advances in biological and physical science, which seem to point towards that consummation.

CHAPTER VI

EVOLUTION VERSUS MECHANISM

Darwin's genius and indefatigable industry focussed the attention of the scientific world on the problem of evolution, but did not succeed in giving a complete theory of the origin of species. Natural selection by struggle for existence is a subordinate factor in the process. It eliminates the unfit and clears the ground for the fit to survive and make for progress; but it cannot produce the variations that have evolutionary value. The origin of variations is the crux of the evolution problem. Darwin believed, and Dr Russel Wallace still holds, that infinitesimal increments of change in organisms are continually occurring over wide areas, and that some ultimately attain prominence enough to give their bearers an advantage in the struggle. But there is now general agreement that the fundamental ques-

tion of the origin of variations cannot be dismissed with such convenient ease. Prof. Weismann, indeed, is a Darwinian among the Darwinians. He maintains strongly that selection meets the case of the origin of variations as well as it does that of the survival of the fittest; and he extends its operation beyond the limits of "individual selection" which were set to it by Darwin and Wallace. It would be difficult within a limited space to put his theory into language that would be intelligible to the general reader: but it may be possible to give it in outline, and show how freely this leading Darwinian makes use of hypotheses. He maintains that there can be no inheritance of acquired qualities, inasmuch as the germ-plasm, in which are the elements that go to the formation of offspring, is passed on from generation to generation unaffected by changes in the life experience of the parents. These elements he calls "determinants," and says that natural selection goes on among them as selection by struggle does in the lives of individuals. It is safely assumed that there are fluctuations in the supply of nutriment to the germ-plasm: so, if there are such things as his determinants, certain of them will doubtless fare better than others and go on increas-

ing in size and strength. These will become dominant in reproduction. The postulate of initial inequality of the determinants and of a tendency in favoured ones to improve on any advantage gained, is used by Weismann to get over a difficulty in natural selection. If it is effective only in the lives of individuals, it is not easy to see how the infinitesimal variations founded on by Darwin and Wallace can have evolutionary value; but a variation which would not count for survival in the case of individuals, might avail to initiate a change that would grow to survival value in the determinants. When a determinant of evolutionary value fared badly in the fluctuations of nutriment, it would go on deteriorating, and the individual concerned would perish in the struggle for existence. Determinants of no evolutionary value that deteriorated might survive for an indefinite length of time. The theory of germinal selection is of course much more elaborate, but the determinants and the "struggle" among them form its most important feature. Weismann states fairly in the following terms the problem he undertakes to solve:—"Everything we can see in animals is adaptation, whether of to-day, or of yesterday, or of ages long gone by; every kind of

cell, whether glandular, muscular, nervous, epidermic, or skeletal, is adapted to absolutely definite and specific functions, and every organ which is composed of these different kinds of cells contains them in proper proportions, and in the particular arrangement which best serves the function of the organism." He saw that as Darwin left it, we cannot tell either in natural selection or in sexual selection when an infinitesimal variation gives an advantage; but, he says, "we must assume that it does, since otherwise secondary sexual variations remain inexplicable. . . . The same thing is true in regard to natural selection. It is not possible to bring forward any actual proof of the selection-value of the initial stages, and the stages in the increase of variations. . . . We have to fall back on *presumptive* evidence. This is to be found in the *interpretative* value of the theory. . . . It not only explains the *transformations* of *species* but also their remaining the same." These remarks, which are quoted from Weismann's latest expression of opinion, are not even so decided as they might be regarding the *secondary* influence of selection in the process of evolution, for natural selection rests on something more than presumptive evidence. But modes of explanation

totally different from germinal selection are used by other distinguished biologists.

To those variations which constantly occur, and of which Darwin could think of no other cause than the accidental influence of environment, Prof. Hugo de Vries has given the name "fluctuations," and says they can have no significance for natural selection. They do not, however, occur by accident. They are subject to a law known as Quetelet's law, by which it is possible to calculate how many individuals must be compared to obtain any fixed degree of variation. Variations which are of evolutionary value De Vries believes occur very rarely, "perhaps only once in a thousand years," and that they are not subject to Quetelet's law. These "Mutations," as he calls them, are a different type from the "fluctuations." Besides affecting size, number or weight, they bring about new features, which may or may not be useful. If the new features are useful, they survive and function in natural selection; if not useful, they may either persist or perish. De Vries holds these rare "mutations" to be "the real source of progress in the whole realm of the organic world." The causes of them, he says, "are as yet wholly unknown and can hardly

be guessed at," but that seemingly they are not restricted to determinate lines. He attaches no value to Weismann's theory of germinal selection.

Prof. Ernst Haeckel favours as the true theory of evolution in organisms a combination of Darwinian selection with the transformism of Lamarck. His belief in the transmission of acquired characters places him in direct antagonism to Weismann, whose theory of the continuity of the germ-plasm is, he says, "a finely conceived molecular hypothesis, but it is devoid of empirical basis. The notion of the absolute and permanent independence of the germ-plasm, as distinguished from the soma-plasm, is purely speculative; as is also the theory of germinal selection. The determinants, ids and idants, are purely hypothetical elements. The experiments that have been devised to demonstrate their existence really prove nothing." Darwin's "selection" Haeckel would supplement with Roux's "mechanical teleology," which "lays stress on the significance of functional adaptation as the most important factor in evolution, puts cellular selection above personal selection, and shows how the finest conceivable adaptations in the structure of the tissue may be brought

about quite mechanically without preconceived plan." Richard Semon's Mnemic theory, which explains heredity psychologically as a process of unconscious memory, and the views of some other writers that sensitiveness is a quality of matter, Haeckel considers to reach completion in his theory of Panpsychism.

The view that commends itself to Prof. Sedgwick is that at the first appearance of life, the life-cycle was either actually or "*in posse*" as long as it is at present. To understand this it must be remembered that it is the opinion of most biologists, and especially of Haeckel, that in embryonic life the individual passes essentially through all the stages of development through which the species it belongs to has passed. This hypothesis therefore postulates that early external conditions were not favourable to the manifestation of all the potential life-history, and that evolution had to wait for environments to which the organism's "innate capacity for change" could adapt itself—a view having a quaint resemblance to the old pre-established harmony, and discredited by the difficulty of conceiving such a pregnant potentiality at the start of life, while suggesting a problem, not less difficult, of the origin of environments in

series fitted to call forth the pre-established stages of the life-cycle.

Prof. Bateson, a leading authority on the Mendelian theory of heredity, and alive like all the others to the definite orderliness that exists throughout the whole system of nature, thinks that it cannot have been the result of natural selection, since the same orderliness is found in newly sprung varieties in which natural selection has not had time to operate. Only the briefest summary can be given here of his presentation of Mendelism, so far as is necessary for the present purpose. He holds that variation must now be regarded in the main as a phenomenon due to the addition or omission of one or more definite elements, but that the causes of such addition or omission are as yet unknown. "It is certain," he says, "that segregation in countless instances plays a part in the constitution and maintenance of characteristics held by systematists to be diagnostic of species, and that plenty of the characters now known to segregate would be far more than sufficient to constitute specific differences in the eyes of most systematists, were the plants or animals in question brought home by collectors." He does not claim that Mendelism provides any fresh clue to the

problem of adaptation, "except so far as definite is more likely than indefinite or impalpable change to entail such consequence"; but he thinks that important advance will be made when the nature of the interaction between the chemical and the geometrical phenomena of heredity is ascertained. "Indications," he says, "have been found which can only mean that in the simultaneous distribution of many factors among the germ cells, some of the factors must be described as repelling others. These factors, which are treated as units in the process of heredity, can be variously recombined. Sometimes they act separately, sometimes in conjunction, producing various effects, but always with definiteness and specific order in heredity, and therefore in variation." And this order is held to be "a consequence of the fundamental chemical and physical nature of living things." "In the light of present knowledge," he says, "it is evident that before we can attack the species problem with any hope of success, there are vast arrears to be made up. . . . Not till knowledge of the general properties of organisms has attained to far greater completeness can evolutionary speculations have more than a suggestive value. . . . The time is not ripe

for the discussion of the origin of species." Prof. Bateson rests his hope of fruitful discovery on research under the guidance of the Mendelian theory. He also makes the assumption that the variations are not guided into paths of adaptation.

The foregoing may be taken to be the leading views for the present on variation in organisms; and their divergence illustrates the difficulty of the problem. An opinion may be hazarded that Mendelian research will yield the best results in the future. It has already given practical guidance to breeders and agriculturists under the auspices of Prof. Bateson at Cambridge. That Mendelism is more in agreement with the Mutation theory of De Vries than with the others, is avowed in Bateson's statement that "there is a natural distinction between fluctuational variations and actual genetic variations: by the latter alone permanent evolutionary change of type can be effected." And he seems to dovetail the two theories in the following: "We now see that the discontinuous variations are in the main the outward manifestations of the presence or absence of corresponding Mendelian factors, and we recognize that the unity of those factors is a consequence of the mode

in which they are treated by the cell divisions of gameto-genesis. With the discovery of those factors precise analytical treatment can at length be applied to the problem of Evolution." The Mendelian theory also appears to fit in fairly well with a view on which palæontologists are said to be now generally agreed, that there is some principle underlying the process of evolution more fundamental than chance-variation or response to environment. Dr Arthur Smith Woodward, in dealing in his address at the meeting of the British Association (1909) with the remarkable discoveries of fossil backboned animals during the last fifty years, spoke of "alternations of restless episodes which meant real advance, with periods of comparative stability," and said that the sudden fundamental advances were supposed to be caused by some inscrutable inherent "bathmic force," in other words, by some unknown cause making for progress. At these "expression points," as they have been called, some important structural character, previously imperfect and variable, becomes definite and remains so through the period of stability. From these phenomena and from other evidence, Dr Woodward concluded that there must be some inherent power

in living things as definite as that of crystallization in inorganic substances, and that "the regular course of these changes was merely hindered and modified by a succession of checks from the environment and natural selection." At the same time he laid special emphasis on the persistent progress of life to a higher plane during the successive geological periods.

The habit of scientific research too frequently induces a belief that there can be no *veræ causæ* outside the spheres of fact in which it operates. But the only instance of *real* causality within human experience is the human power of will. "The world which we represent," said Prof. Adamson, "as a world causally interconnected, is a systematic process; and such system means only that each part of the process has a constant uniform character." No objection can be made to the quest for mechanical sequences in nature. That cannot be carried too far. It is not to the interest of philosophy that there should be any unintelligible gaps. But since scientists of the highest repute are agreed that the infinitesimals of nature influence and are influenced by the entire material universe, it would seem that a complete mechanical explanation of the simplest phenomenon can

only be got when the man of science has become omniscient. As Prof. William James wrote in *A Pluralistic Universe*, "In the end nothing less than the whole of everything can be the truth of anything at all." Meanwhile the eager pursuit of mechanical explanation is tempting to the use of devices hardly less inadmissible than the ancient one of *Deus ex machina*. "Must" is a word to conjure with in the vocabulary of Prof. Weismann. The fact of coadaptation is a bugbear to Darwinians, but it "must" be explicable by natural selection, for no other explanation is available. It is not easy to see how the minute initial stages of a variation can have any evolutionary value. But they "must" have value, or there can be no evolution. Without any empirical warrant, Haeckel says, Weismann invents his hypothesis of germinal selection as a complete explanation of the origin of variations. And it is with the aid of these devices that Weismann has performed the feat of conceiving "how what was purposive could be brought about without the intervention of a directing power." Prof. Haeckel has his own *Deus ex machina* in the "Trinity of Substance." What virtue may lodge in Prof. Sedgwick's *posse* it may be left to M. Bergson's Superman to discover.

All these marvels purporting to be *veræ causæ* seem to have as little basis on facts as many other now discarded *causæ* that have crossed the stage of science.

A complete mechanical sequence cannot be got in biological phenomena by Mendelian or any other of the rival forms of biological research, seeing that "the definiteness and specific order in heredity, and therefore in variation, is a consequence of the fundamental chemical and physical nature of living things." This conducts to a new world of indefinite range and complexity for the student of evolution by mechanical sequence to enter upon—a world in which phenomena are being discovered that outmarvel all the hypotheses of Darwin's successors. Prof. Klebs in *Darwin and Modern Science* has pointed the way. "We must discover," he says, "what are the internal processes in the cell produced by external factors, which as a necessary consequence result in the appearance of a definite form. We are here brought into contact with the most obscure problem of life. Progress can only be made *pari passu* with progress in physics and chemistry, and with the growth of our knowledge of nutrition, growth, etc." So the student of evolution must follow the

track of the physicist in his announcement that the atom is not the finality it was supposed to be; must accept his provisional hypothesis that "matter is just a collection of positive and negative units of electricity; and the forces which hold atoms and molecules together, the properties which differentiate one kind of matter from another, all have their origin in the electrical forces exerted by positive and negative units of electricity, grouped together in different ways in the atoms of the different elements." We learn that the ether, which "is as essential to us as the air we breathe," is an impalpable, imponderable substance absolutely continuous throughout the universe; that every cubic millimetre of it "contains an amount of energy which is expressible as equal to the energy of a million horse power station working continuously for forty million years"; that "its density is about two thousand million times that of lead"; yet that this marvellous substance offers not the slightest obstacle to the inconceivably rapid passage of planets and stars through it. That our bodies can plough their way through it is said by Sir Joseph Thomson to be because they "possess a bird-cage kind of structure, in which the volume of the ether

disturbed by the wires when the structure is moved, is infinitesimal in comparison with the volume enclosed by them."

From Sir Oliver Lodge we learn that "the ether is a perfect continuum, an absolute plenum, therefore no rarefaction is possible." Sir Joseph Thomson "does not know at present of any effect which would enable us to determine whether ether is compressible or not." If it is an absolute plenum, a perfect continuum, how can we conceive it to be compressible? Or how can "every part of it be squirming internally with the velocity of light"? To our common-sense experience a plenum is a state of absolute quiescence and rest. And if a substance of such enormous density as the ether is said to be is a "perfect continuum," it should render impossible the movement of the smallest corpuscle, so that the conception of a bird-cage-like structure of matter would not get over the difficulty of the movement of either such masses as stars and planets, or of such insignificant aggregates of matter as our bodies. The statements as to the nature of ether render movement of a single corpuscle as much a mystery as movement of a solid mass of matter of the magnitude of a star. Huxley gloried in the belief

that Darwinism was a resurrection of the old evolution doctrine of Heraclitus, "which," he said, "has proved itself to be a more adequate expression of the universal order of things than any of the schemes which have been accepted by the credulity and welcomed by the superstition of seventy later generations of men." Now the physicists are carrying science back to the thought of Parmenides and Zeno the Eleatics, and making motion and becoming as incomprehensible to us as they were to those thinkers of more than two thousand years ago. Sir Oliver says that motion and force are postulated in physics as completely known. But how can there be motion, or how can force operate, in an absolute plenum? And what, then, becomes of the science of physics, if its leaders hold the hypothetical ether to be the fundamental reality of their material world? It almost seems as if science had exorcised the material substrate, for as yet the molecular theory of electricity is owned to be an unverified hypothesis. Indeed, electricity is only a convenient term for summing up a certain group of phenomena, and has no more known reality corresponding to it than any other limiting conception. All of them may be superseded

by new hypotheses on the discovery of fresh phenomena. It seems, however, that the progress of science is bringing our conception of external reality into closer analogy to the will power of which we have direct consciousness.

The dislike in those who prosecute research in natural science to the assumption of a directing power may partly arise from a feeling that their share of work is done when they have demonstrated mechanical sequence. That is quite a proper conception of the sphere of science. But there should be acknowledgment that there is more in the cosmic process than mechanism can explain. Too many scientists ignore the realm of inner experience, where alone the key to the riddle of the universe can be found. If our earth could be honoured by the visit of a scientist from some other planet who was prejudiced against the idea of a directing power, and who had the defect of not being able to perceive the human beings, though all the works of man were within his observation, he would most likely seek to account for these by a search for mechanical sequences. The data of the cosmos are no better explained than the works of man by the kind of facts that natural science deals

with. The permanent reality that holds in unity the phenomena of our conscious life is a form of being that reveals itself as thought, feeling, and will; and will is the only instance of real causality within our immediate knowledge. States of consciousness have never been successfully linked on to mechanical processes in the brain, still less to mechanical impressions from an external world. All the data founded on by scientists in their observations and experiments are facts within the sphere of ordinary experience. On that experience rest all the limiting conceptions of science, and in it all the discoveries of science are made. The ether, ultimate material entity of science, is perhaps an unverifiable hypothesis. Sir Oliver Lodge says that motion and force are postulated in physics as completely known, but that the ether has not yet been reduced to motion and force: and, that "probably because the *force* aspect of it has been so singularly elusive, it is a question whether we ought to think of it as material at all." He says further that the electron, by different groupings of which the different kinds of atoms are composed, "is only a peculiarity or singularity of some kind in the ether itself." As the old conception of matter is attenuated

into an invisible and impalpable entity which is able to hurl cosmos back to chaos by an insignificant fraction of its potential force, science is postulating a substance endowed with one of the attributes hitherto reserved for a spiritual power. The force said to be stored in a cubic millimetre of ether, multiplied to infinity, would be a fairly good formula for omnipotence. As the ether is said to be a vast continuum filling the whole universe, it has also the attribute of omnipresence. And a survey of the wonderful works and adaptations of nature, they, too, assumed to be the workmanship of the same impalpable demiurge, yields evidence of wisdom as much transcending human conception as the astounding force said to be stored in the negative corpuscle. Even yet, indeed, the limit of analysis may not have been reached. Sir Joseph Thomson's hypothesis of the molecular nature of electricity may be verified by fresh discoveries. There may be more wonders beyond to meet the gaze of future investigators, and lengthen indefinitely the way that will have to be trodden to reach a complete mechanical explanation of the simplest phenomenon.

Who can tell what fresh marvels may follow the discovery of radio-activity? . . . a form

of chemical change hitherto unknown to science, in which the atoms undergo change individually and not by action on each other. One distinguished investigator claims to have obtained a whole series of new elements, the disintegration products of radium. It is still an open question what light these new discoveries may throw on the deeper meaning of the cosmic process. If these disintegrations should be found to be instances of a law that applies to all atomic forms, that would indicate that in the inorganic change is going on from more to less complexity, a direction the opposite to that from simpler to more complex forms in the evolutionary history of organisms. Can it be, then, that in these new discoveries within the domain of natural science, we have an illustration on the great scale in concrete reality of the Hegelian principle of the conjunction of contraries? It is at least interesting to note how in philosophy and science the lines of research seem to be converging. In philosophy the consciousness of activity is regarded as the fundamental fact of the human personality; and in physics we have it on the high authority of Sir Joseph Thomson that "the most natural view to take, as a provisional hypothesis, is that matter is just a collection of

positive and negative units of electricity." As matter is said to be constituted by the action of contraries, so there are contrary tendencies conjoined in the rise from lower to higher forms of organic being, which, as Prof. Bateson says, is based on "the fundamental chemical and physical nature of living things." For the facts of radio-activity show that transition is taking place from greater to less complexity in chemical and physical nature. Disciples of Hegel may hail this as evidence of a dialectic process in the concrete, shedding verisimilitude on the Hegelian doctrine that thought and being are one.

Nature conceived as a manifestation of spiritual reality is not less worthy or less fitted to be a field of scientific research than if it is viewed as the mechanical achievement of the ether or the electron. Wherein on the latter view is the unity of the cosmos to be found? As the will is the only instance of real causality of which we have direct knowledge, so is self-consciousness the only principle of unity in our immediate experience. The hypothesis of a supreme Mind whose thought, feeling, and will infinitely transcend those aspects of the spirit of man, can alone satisfy a being constituted as man is, as the unifying principle

of the cosmos. The evidence for it is our immediate experience of objective thought immanent in consciousness, and making possible the converse of mind with mind and with its own manifestation in nature. The objective reality of nature is strengthened by being viewed as the manifestation of a Supreme Mind. Without that spiritual basis our world would be a phantasmagoria of fleeting phenomenal states. It is objective thought, immanent also in the scientist's mind, that constitutes it a cosmos.

M. Bergson sets up a dualism of two worlds. He accepts the externality of modern physical science in which the reality is movement, and in saying that it is movement without a mobile, he is probably influenced by the hesitation of scientists to decide whether the omnipresent ether is or is not a material entity. On the other hand, he postulates as necessary for practical life another world of mere appearance, that of our ordinary consciousness, which has as little reality as the world of Shades in the Homeric story. Can we believe that reality and life are so completely out of harmony? The world of the ordinary consciousness is the real world. Not a step could be taken in scientific research

without that presupposition. The reality of the objects constituting our environment is to us as certain as is our own existence. It is no less certain to the investigator in science. Deny the reality of his sense-knowledge, and all his observations and experiments come to nothing. And it will be a long, long time before he can fill up the intermediaries between his scientific conception of the ether and the infinite variety of forms in our world of marvellous order and beauty.

According to Sir Oliver Lodge it is possible that the ether may prove to be not matter at all. If not matter, what else can it be but an expression of transcendent will power? The cosmos is replete with evidences of an origin from a source having other spiritual qualities not less transcendent. Science teaches that we have contact with its external reality by the vibrations impinging on our sense organs. Our conscious experience, however, shows no trace of the vibrations. They are translated into more wonderful forms than the imagination of the most gifted of mankind has ever pictured. The only provisional hypothesis that we can reasonably form is that the cosmos is a thought-creation; not the production of individual human thought, but the

manifestation of a spiritual power which is immanent in our spirit and in all the processes of nature. All the so-called verities of science are provisional hypotheses framed in efforts to penetrate to the secret of the great enigma. Our ordinary conscious experience has lived on through, and survives, them all, because it is no "artificial creation," but the manifestation of supreme *creative* thought of which our *finite* type of thought is a reflex. Even if that be only a provisional hypothesis, it accounts better than the "pure perception" or the two "indivisible movements" with their different rhythms of duration, for contact of mind with an external world and for converse of minds with each other. Instead of the *sub specie æternitatis* of Spinoza, M. Bergson would have us think and perceive "*sub specie durationis.*" To him, concrete time, that is, we may suppose, time with all its content, is a spiritual force; and its final product is personality. But we can as little form any conception of spiritual force in abstraction from personality as we can conceive movement without a mobile.

The concluding paragraph of the article on "Life and Consciousness" in the *Hibbert Journal* may be part of the additions said to

have been made to the "Huxley Lecture" at Birmingham University. It expresses M. Bergson's opinion that "the aspirations of our moral nature are not in the least contradicted by positive science." If these words had been spoken to the Birmingham audience, they might have led naturally to some remarks on Huxley's opinion that positive science gives no encouragement to the hope that our moral aspirations will get fulfilment. Bergson's ground of belief in the compatibility of our moral aspirations with the teaching of positive science might not have found much favour with Huxley. These moral aspirations or intuitions, he says, are "something like instinct —an instinct conscious, refined, spiritualized— and if instinct is still nearer life than intellect and science, how could there be disharmony between our intuitions and our science?" The fault, he thinks, "lies with intellect and science, in combining with science proper an unconscious and inconsistent metaphysic, which in vain lays claim to scientific pretensions." From this it is evident that Bergson can administer little comfort to those who, while cherishing the moral aspirations, do not see their way to pin their faith to his philosophy. Some consideration given to Huxley's teach-

ing in his "Romanes Lecture" may warrant a belief that, without having recourse to this philosophy of intuition, we may find some solid ground in positive science itself on which to rest our moral aspirations. We shall endeavour to keep our reasoning free from all "inconsistent metaphysics," and base it mainly on the principle of cosmic continuity which is not foreign to the Bergsonian system.

CHAPTER VII

THE ETHICAL IMPORT OF EVOLUTION

The pessimistic view of the cosmic process in Huxley's "Romanes Lecture" was probably due to the deep impression made on his mind by the discovery of Darwin. Hence the disquieting contrast which he drew between the course of nature and the ethical ideas of man. A "gladiator show" is not a faithful representation of the prehuman world. There was perhaps a better balance of happiness in the life of the lower animals in a state of nature than there is in the life of a large proportion of civilized mankind. It would be difficult to imagine what better conditions there could have been in an evolutionary world. It could not be a world after the pattern of a primeval paradise. There had to be small beginnings leading on to great ends: and, to be an intelligible world, continuity and progress from

stage to stage. Progress could be got no otherwise than by the survival of the fittest; hence weeding out of the unfit by the tendency of animal life to increase more rapidly than the means of subsistence. It may be assumed that if there had been no carnivores to prey upon the herbivores and on each other, the miseries of death by starvation would have been greater than the swift pangs that were inflicted in the upward progress.

The full and proper meaning of a process is only revealed in the end at which it aims: and if regard is paid to the end pursued in nature in the evolution of higher from lower types, and to the ends pursued by man in his spiritual progress, it will be seen how close is the analogy between them. In both progress is made, and it is made in both through sacrifice. In the lower stage it had to be made by the sacrifice of types in the so-called struggle for existence; and in the lower sphere nature secured an upward progress by producing variations favourable for that end. In a being endowed as ethical man is, sacrifice of the individual is no longer compatible with progress, nor is sacrifice of the type required. Struggle continues in the human race; but it is transposed, or ought to be if the moral

ideal of real progress is to prevail, from the external conditions of existence to the inner life, where inherited instincts have to be subdued under the ideals of reason and the moral consciousness. Individual ends have to be sacrificed for social ends, and these again for humanitarian ends, in the spiritual development of the race. And just as in the lower animal world higher forms were gained for subsequent generations by elimination of the unfit; so in the human race a better and a higher life is won for the individual and for posterity by the self-sacrifice which is practised for social and humanitarian ends. The same ethical law rules throughout, that progress there must be, that it can only be through sacrifice, and that it tends to greater happiness of existence.

It has been well said that "all ultimate or philosophical explanation must look to the end. . . . If we are in earnest with the doctrine that the universe is one, we have to read back the nature of the latest consequent into the remotest antecedent." And if we are believers in the evolutionary descent of man, we must read back into the prehuman stage what is most essential in the human. The universe would not be one if there was a break between

prehuman nature and ethical man. It would be severed in twain where the break occurred. Huxley, dominated by the opinion which in his day was widely held, that in the domain of living being, self-regarding struggle for existence is the sole expression of the cosmic force, ignored the deep significance of adaptive variation. Nature, accordingly, seemed to him to be an arena of strife in antagonism to the moral ideal: hence two evolutions, a natural and an ethical, with a break between them. The one presented the aspect of a world under the dominion of an Ahriman, and the other was a separate evolution under the sway of an Ormuzd mysteriously enthroned in the human consciousness. Huxley was burdened with a pair of dualisms. There was his dualism of a process in material nature, culminating after a long course of evolution in the human organism; and an epiphenomenal consciousness parallel with the process in the states of the organism. There was his other dualism of an ethical kind, in which nature and ethical man were supposed to be at strife. The latter was more objectionable than the former; for there was at least said to be harmony between the material process in the organism and the epiphenomenal conscious

process. But there was no occasion to brandish the sword in Norse fashion against the skies in vindication of the ethical dignity of man. The long series of adaptive variations through all the geological periods, evidenced by the fossils, and a less jaundiced view of the conditions of life in the prehuman world, have made it possible to get rid of the incubus of an ethical dualism, and to see one continuous moral purpose in the whole terrestrial evolution. In the opinion of many still, indeed, the survival of the fittest gives no security for progress. It is thought to mean only fitness for the conditions of time and circumstances, and that might signify retrogression. But such is only a fractional reading of the process: it weighs nothing against the testimony of palæontologists and biologists that there has been a continuous rise from lower to higher planes of life.

The continuance of enormous destruction of human beings through all the history of our race affords melancholy evidence that there has been no break between the prehuman order and ethical humanity. If there was anterior to man sacrifice of types by disappearance of the less fit in the struggle, there has been sacrifice of persons, classes, and nations

in the chequered story of man's existence. And progress of the race, at least in the earlier stages, was achieved with as little conscious purpose as was the advance from the amœba to the vertebrate. It has been, and will be, the kind of progress and the mode of sacrifice possible and therefore appropriate to the respective periods, without any such inconsistency as to imply a break in the continuity of the evolution. If we regard pain and death as necessary features of animal existence in an evolutionary universe, there is for us no other state of things conceivable as antecedent to ethical man than that which Huxley was rash enough to condemn.

There are three main objections to the teaching in the "Romanes Lecture." It breaks faith with the principle of evolution. It implies that a new and antagonistic principle was superadded to the cosmic process at some point of time. It emasculates the conception of the moral ideal. If there has been uninterrupted continuity in the development of the human organism from some primitive form, the common ancestor of the whole animal series; if in the facts of embryology it is seen that the human individual has passed through a succession of lower types

before emerging in human form: it is no less certain that there are connecting links between animal instinct and man's intelligence, premonitory rays of intellect in the higher animals, lingering traces of instinct in human beings, and an appealing likeness in the emotional states of some of the animals to the best feelings of man. Ethical society has been a gradual growth *pari passu* with the long development of the human organism from a lower type. Man himself did not begin as a horticulturist in a Garden of Eden. He was a denizen of the forest like his immediate progenitor, and struggled for his existence in a similar way against competitors of his own and other kinds. It took him untold ages to learn how he might yoke the cosmic force in his service. Ethical man is wrongly represented by Huxley as contending against that force. Such may be a partially correct account of the struggle in the prehuman period and in the earliest stage of human life on our planet. Far back in the prehistoric ages there were beings in human form who, like the animals of the prehuman time, were unconscious fellow-workers with the cosmic force in working towards progress by elimination of the unfit. As brain and

intelligence developed, our rude ancestors learnt the lesson that unity gave strength for competition with their own and other kinds. They added to their efficiency by inventing tools and weapons as they grew in knowledge of the cosmic forces which would serve their purpose. Probably any altruistic sympathies they may have had were for long very little in advance of those of the higher animals. Darwin, from his unique knowledge and fine sympathy, deemed it reasonable to recognize in the *protégés* he observed so carefully, even something resembling a conscience. Who has not remarked and been touched by the dog's friendship with man ?

It is no derogation of man's ethical dignity to question the truth of Huxley's doctrine that the life of man is a struggle in opposition to the cosmic force. If that doctrine had validity, it would imply that the cosmic process is foreign and hostile to the Power in whom the moral consciousness "lives and moves and has its being." That would be more than a break in the continuity of the cosmic process. It would be a denial of the divine sovereignty, a deathblow to the theory of evolution and the conception of an intelligible universe. Huxley misconceived the

relation of man's activity to the cosmic force. He represented human life as a continuous struggle against it. Whensoever it is so, it is a blunder and ends in defeat. The simplest industries are fruitful only in so far as they are regulated in compliance with the laws of the cosmic force. The practical utility of scientific research consists in the ability it confers to harvest the products of that force. Man of course has to work in order to reap the harvest. It would be fatal detriment to him if nature provided for all his needs without requiring him to make any exertion. Ethical manhood can only be gained by the sweat of the brow or the brain. It is precious ethical discipline for man that he must fence round his garden of industry against any hostile invasion of cosmic forces. None the less are his industries dependent on cosmic force for their success. The same force that plays havoc with the crops of the sluggard, gives the increase to those of the diligent.

The most important objection to Huxley's teaching is that it emasculates the conception of the moral ideal. He looked with horror at what he regarded as internecine strife in the prehuman world. He might have felt greater horror at the strife in ethical mankind. All

other considerations apart, one striking difference between the two modes of strife is, that while that in the lower animal world and in primitive humanity was instrumental to progress, the strife that still endures in advanced ethical humanity is adverse to progress. The conception of evil cannot apply to anything in the cosmos until the advent of man. It may seem paradoxical to say that Huxley's conception of the moral ideal is too sentimental; yet it will not be difficult to substantiate the charge. The true moral ideal is progress, and progress is the governing law of the cosmic process, under which in the astronomical world there has been evolution from nebular masses floating in space to the ordered movements of suns and their satellites: and in organic life on our earth, continuity of progress from the humblest forms up to man. No interference from without can be detected. No eye has perceived any external power by which planets have been condensed and sent revolving in their orbits, and those variations have been produced in living organisms which have led to the rising series of forms in plants and animals. Yet in the long history of our globe, so far as it is accessible to research, there has been traced a continuous advance

to higher modes of existence. Even if it be granted that progress was only achieved at the cost of such suffering as Huxley supposed, it is beyond man's power to tell whether it could have been got on any other terms. Suppose a choice to have lain between a world of progress with suffering, or a world of painlessness without progress, would the latter have been morally preferable? Perhaps it will be said that the lower animals could have no such compensation for their suffering in the contemplation of progress achieved as ethical man may have. That is true. On the other hand, we do not know how far in the prehuman world the suffering was balanced for the animals by a happiness enjoyed in their life activities in a state of nature. We may presume that their joyful sense of life was not clouded as ours is too often by forebodings of the future. There must be differences between the mere animal consciousness even of the higher types and that of man, to make us chary of applying to their life the standards which are fitted for ours. It does look sentimental to charge nature with malevolence for arming her humbler offspring with weapons for their warfare, when the nations of ethical mankind are vying with each other in invent-

ing weapons and machines, and training their manhood at enormous cost, with a view to their mutual destruction whenever occasion arises. Nor did the animals use the weapons which nature gave them for the gratification of a sporting instinct. Nature prompted the use of them only when necessity required it: the "monsters of the prime" probably did not kill for sport. It is a fair conclusion that the cosmic force in the prehuman period, as in animal life in the state of nature at present, was governed by an immanent Power for the gradual attainment of higher and better forms of existence; and that under natural selection as the means employed for elimination of the unfit, animal life was and is worth living.

And for ethical man there can be no higher ideal than progress. It comprises all the best ends to which humanity can aspire. No course of private conduct can be wrong which is intelligently aimed at self-improvement in the broadest sense. There can be no better test of conduct towards one's neighbour than putting the question squarely, Will the conduct proposed towards him tend to his permanent improvement? In public measures of social reform it is of more importance to consider

their ultimate effects in raising or lowering the watermark of progress, than to give attention to the palliation of existing evils. Sentimental methods of helping weakness and palliating suffering too often result in propagating them. The backbone of the moral consciousness needs to be stiffened in these days by restoring to its rightful place the cosmic ideal of progress. There is an article in the *Hibbert Journal* for October 1911 on "Decadence and Civilisation" which is wisely suggestive on this subject.

And, finally, the moral aspirations of humanity will best be justified by keeping a firm grasp of progress as the truth of the cosmic process. Huxley seems to have put no faith in the permanence of progress. He looked forward to a time when the course of nature would be reversed, and the cold hand of death be laid on all that lives on our earth. Though not lacking in faith that progress would continue during a long future, he knew, for science told him, that a time shall come when the process will be reversed, when the store of available energy will be far on the wane, organic being will undergo a long dissolution, and man and the glory of man's work on earth shall come to an end. What more

to him could man be than an excrescence on the planet's surface, like the vegetation that clothes it? Before him was the gloomy prospect of a time when the dead orb shall traverse space untenanted, or be thrown back by some cataclysm to the same nebular condition from which the course of terrestrial evolution began, to begin anew the same long history, and terminate in the same dread plunge into the abyss, cycle succeeding cycle of evolution through endless time.

That is a world-conception which cannot harmonize with the true conception of the cosmic process. It is a denial of cosmic continuity. It makes the cosmos an infinite series of abortive attempts to attain to perpetuity of progress. It presents the immanent principle of the universe in the likeness of the weak mind that begins a task it never completes but always begins anew. There is no link of continuity between one cycle of evolution and the one that follows it, no advance upon the long course of development through which the former passed. Each cycle starts from the same nebular state to end in the same doom. Now, unquestionably, the note of terrestrial evolution is progress. So far as our power and means of observation extend, the constitu-

tion of the other orbs resembles that of our earth. We may therefore conclude that the evolutionary idea which reigns on our earth is a universal law of the cosmos. That idea does not tolerate the hypothesis of the annihilation of progress which would be implied in the destruction of all the fruits of terrestrial development, any more than it tolerates a succession of abortive evolutionary epochs. It necessitates the thought that there can be no break of continuity in the cosmic process; that each stage must inherit and carry forward the *true* results of its predecessor, losing nothing that bore the stamp of reality. Therefore materialism cannot stand the test of the idea of evolution. Reason rejects it, for its eschatology is repugnant to the notion of progress, the fundamental reality of the cosmic process. It assigns permanence to a hypothetical germ of development, a mysterious and elusive material substrate, and dooms to annihilation all the fruits of development, the crowning realities of terrestrial existence.

Idealism expresses the truth of evolution. To it the fundamental reality is not matter or energy, but spirit. The phenomenal world of the ordinary consciousness is a thought-creation having reality for our experience as a

manifestation of spirit, as the genius of Goethe saw and the strong intellect of Hegel went far to prove. And natural science is appreciably nearing that view in its latest doctrine of the primary form or substrate of the so-called material world. The cosmos is not static but dynamic: it is process, and process for the end of the spiritual fruitage it yields. The whole series of the evolutionary stages of the manifestation of objective spirit leads up to man as the crown of terrestrial being, in whom spirit attains to self-consciousness. The truth, the worth, the cosmic validity of terrestrial evolution abides in man's spiritual activities and interests. The continuity of the cosmic process which evolution implies can be nowhere made permanent but in the spirit of man. His body is only an excrescence on the planet, and must share the planet's fate. But if progress is the true law of the cosmos, the spirit of man, as true reality, must be the bearer of the heritage of terrestrial evolution in the farther process after our earth has run its course. That much at least intellect demands if we are to hold fast the idea of an intelligible evolutionary universe. And idealism confirms it by its doctrine that the world order is subservient to the spiritual end of

developing the moral and religious consciousness; that the fact of man having intelligent converse with that world order is proof of the kinship of his personality with the objective spirit that rules the universe; and therefore that there is no ground for the belief that the spirit of man shall perish with that temporary manifestation of the Eternal which has formed man's temporary environment. Although intellect cannot penetrate to the secrets of the future, we may believe that the possibilities of manifestation of the Universal Spirit are not exhausted in our earthly life. Continuity there must be, and an upward progress that will equal, if not far excel, that of the past.

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